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**THE MEASUREMENT OF EMPATHY IN PRESCHOOL CHILDREN**

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## Abstract

Empathic ability, emerging in the first few years of life, provides a foundation for the development of prosocial behaviour and healthy peer relationships in childhood and for later social-emotional adaptation in adulthood. Research has been limited due to difficulties in the operationalisation and measurement of the empathy construct. No formal psychometric instruments exist to assess empathy in children four years of age or younger. The first paper provides a framework for the development of a new psychometric tool to assess empathy in the preschool period. The paper explores the acquisition of empathy in the first few years of life in normative and clinical child samples. Current methods used to assess empathy in this age group are also reviewed with suggestions for future psychometric development.

The second paper investigates a new self-report instrument: The Southampton Test of Empathy in Preschoolers (STEP). The test incorporates four distinct but conceptually related tasks, each assessing the child's ability to understand and share in the emotional experience of a child protagonist. Experiment 1 describes the theoretical conception and construction of the scale. Experiment 2 explores the initial psychometric properties of internal consistency reliability and construct validity in a sample of UK preschoolers. The results show good internal consistency, concurrent validity with parent-rated empathy, and convergent validity with teacher-rated prosocial behaviour. Results are discussed in terms of recommendations for replication and further research.

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## Literature Review

### THE DEVELOPMENT AND MEASUREMENT OF EMPATHY IN EARLY CHILDHOOD

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# **The Development and Measurement of Empathy in Early Childhood**

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Empathy in Early Childhood

## Abstract

Investigators and theorists have long argued that empathy influences various aspects of a child's development, including his/her risk for psychopathology. Early empathic competence is associated with prosocial behaviour, healthy peer relationships and psychosocial adaptation in adulthood whereas early empathic incompetence is associated with peer problems, academic underachievement and later disorder. Knowing more about the pathways linking empathy with psychosocial outcomes will set the groundwork for preventative interventions that enhance a child's social development. An important first step in this area is the identification of children whose empathic development is off-course. The present paper begins with a review of current theoretical understanding of the development of empathy in early childhood. The significance of this process for later social-emotional adaptation is considered by examining findings drawn from investigations with typical and atypical child samples. The paper then explores the measurement of empathy in early childhood. There are currently no formal psychometric measures of empathy in preschool children. This aim of this paper is to provide a framework upon which future measures of empathy may be developed. The paper concludes by considering the relevance of empathy for studying and understanding psychopathology.

**Key Words:** Empathy, preschool children, typical development, psychopathology, measurement

## Introduction

Recently, there has been a great deal of interest in the role of emotional functioning in successful psychosocial adaptation (Hubbard & Coie, 1994; Fox, Schmidt, Calkins, Rubin, & Coplan, 1996). Individual differences in the experience, expression and regulation of emotion have all been examined in relation to various indices of adjustment (e.g., Calkins, Gill, Smith, & Johnson, 1999; Fox et al., 1996). Although most of the research in this area has focused directly on experienced emotions, there is growing interest in the area of vicariously induced emotions surrounding the experience of empathy (e.g., Eisenberg et al., 1996; Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000; Zahn-Waxler, Cole, Welsh & Fox, 1995).

Although empathy may be viewed as an indicator of more general emotional functioning, it is clear that the ability to experience and express empathy when faced with the distress of others is integral to social development (Bateson, 1991; Eisenberg, 2000; Hoffman, 2000; Preston & de Waal, 2002). Early empathic ability has been associated with greater frequency of prosocial behaviour in social settings and higher rates of success with peer groups (e.g., Davis, 1994; Denham, 1998; Eisenberg, 2000; Eisenberg & Fabes, 1990). Many theorists have also argued that young children who experience empathy will be more motivated to show helping behaviours or to stop aggressive behaviour towards another person (e.g., Cohen & Strayer, 1996; Hastings et al., 2000).

The present paper provides a framework for the future development of an effective psychometric tool to assess empathy in early childhood. Following a brief review of the empathy construct, the first part of the paper presents an overview of the importance of empathy in the first few years of life, examining

developmental findings drawn from normative samples along with a smaller body of research that has focused on empathic processes in at-risk or clinic-referred samples. The second part of the paper provides a critique of current paradigms for determining empathic ability in younger children. The paper concludes by considering the relevance of empathy for studying and understanding psychopathology.

### The Empathy Construct

Despite the importance of empathy, it has been a difficult concept to define. General definitions, such as “placing yourself in someone else’s shoes,” do not allude to the complexities of the construct, its underlying processes or its distinction from the related constructs of sympathy and personal distress. Within psychology, research has typically been divided into two broad rubrics: theorists who have defined empathy in terms of affect, and those who have taken a more cognitive approach. The historical development of these two perspectives is outlined first.

#### *Past Controversies*

The term empathy was introduced into psychology at the turn of the century by Titchener (1909) as a translation of the German word “Einfühlung” meaning “feeling into” (Wispé, 1986). Lipps (1903; 1905) put forth the first mechanistic account of Einfühlung, where the perception of an emotional gesture in another directly activates the same emotion in the perceiver, without any intervening labelling, associative or cognitive perspective-taking processes.

Early theories of empathy in psychology were largely influenced by the affective view of Lipps and Titchener until Kohler (1929) put forward an account of empathy as a higher-order cognitive phenomena. Rather than continuing to

focus on “feeling into” the experiences of another, he held that empathy was more the understanding of others’ feelings, an ability reserved for higher order beings. At a similar time, two other highly influential theorists, Mead (1934) and Piaget (1932) separately addressed the question of empathy and both offered views that emphasised cognitive over emotional aspects. Mead’s (1934) work placed emphasis on the individual’s capacity to take the role of the other person as a means of understanding how they view the world. He regarded the child’s role taking ability as the key to social and ethical development. Piaget’s (1932; 1967) research in the child’s development of cognitive function also contributed to the emphasis on empathy as a cognitive function and to the ideas of what is required of an individual in order to “decentre” and imagine the role of another. In recent terminology, these views are referred to as using a “theory of mind” (Astington, Harris, & Olson, 1988) or “mindreading” (Baron-Cohen, 1995; Whiten, 1991).

In response to this division within the psychology literature, Gladstein (1983) coined the term cognitive empathy to mean “intellectually taking the role or perspective of another person” (p. 468) and affective empathy to denote “responding with the same emotion to another person’s emotion” (p. 468). Although these terms were useful for categorising empathic behaviour, it was quickly recognised that the constructs represented a false dichotomy. Research investigating the interactions between cognitive empathy and affective empathy established that the components often co-occurred and could not be easily disentangled (Bower, 1983; Isen, 1984).

A substantial amount of research was therefore conducted that attempted to refine the construct of empathy. Through this research, a general consensus has emerged, which defines empathy as a synthesis of cognitive and affective

Table 1

*Definitions and Dimensions of Empathy*

Author	Definition of Empathy		
Hoffman (2000)	“The involvement of psychological processes that make a person have feelings that are more congruent with another’s situation than with his own situation” (p. 30)		
Eisenberg (2002)	“An affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and that is similar to what the other person is feeling or would be expected to feel” (p. 135)		
Preston & de Waal (2002)	“Any process where the attended perception of the object’s state generates a state in the observer that is more applicable to the object’s state or situation than to the subject’s own prior state or situation” (p. 4)		
Baron-Cohen (2002)	“The drive to identify another person’s emotions and thoughts, and to respond to these with an appropriate emotion” (p. 248)		
Dimensions of Empathy			
Hoffman (2000)	Davis (1994)	Feshbach (1982)	Vreek & van der Mark (2003)
Mimicry	Empathic concern	Emotional discrimination	Emotional contagion
Classical condition	Personal distress	Perspective taking	Emotional congruence
Direct Association	Fantasy	Emotional response	Reactive emotions
Mediated Association	Perspective-taking		
Perspective-taking			

responsiveness to the perceived emotional state of another (see Table 1). In this way, empathy encompasses two major elements: the ability to attribute mental and emotional states to oneself and others; and having an emotional reaction that is appropriate to the other person’s mental state (Baron-Cohen & Wheelwright, 2004; Hoffman, 2000; Preston & de Waal, 2002; Vreek & van der Mark, 2003).

Empathy (i.e., feeling *with* another person) can be distinguished from sympathy (i.e., feeling *for* another person) and personal distress (i.e., feeling *for the self*), although the three constructs are closely related and often part of the same complex affective experience (Eisenberg, 2000). For instance, Eisenberg and colleagues (Eisenberg, 2000; Eisenberg & Fabes, 1990; Miller & Eisenberg, 1988) suggest that empathy may extend into sympathy, where the observer feels sorrow or concern for another, or personal distress, an adverse reaction that consists of feelings of discomfort. Whilst empathy and sympathy may elicit prosocial attempts to engage with another, personal distress is associated with self-comforting behaviours (Eisenberg, 2000).

### *Current Theoretical Understanding*

Table 1 provides an overview of the cognitive and affective dimensions of empathy represented within current theoretical models. In general, it is suggested that the affective components of empathy, such as mimicry (Hoffman, 2000), reactive emotions (Vreek & van der Mark, 2003) or emotional responsiveness (Davis, 1994), are first to emerge in the child's development. Reflecting the early work of Lipps (1903), these processes are broadly based on perception-action coupling, whereby the perception of the other or the other's situation is believed to activate and generate a shared affective state in the observer. Thus, the observer automatically attends to and shares in the other's emotional experience.

As the child matures, affective processes become mediated by increasingly complex cognitive appraisals including associated conditioning (Hoffman, 2000), fantasy (Davis, 1994), emotional congruence (Vreek & van der Mark, 2003) and perspective-taking (Davis, 1994; Feshbach, 1982; Hoffman, 2000; Vreek & van der Mark, 2003). These processes are underpinned by a more general

understanding of others as active and intentional agents, whose behaviour is driven by goals and desires (Baron-Cohen, 2004). The ability to adopt the psychological perspective of others is the cognitive process most frequently associated with empathy (Davis, 1994; Feshbach, 1982; Hoffman, 2000; Vreek & van der Mark, 2003). This is achieved by either responding to the emotional information as if it applied to the self (the simulation theory; Gordon, 1986) or using emotional information that is already possessed (the ‘theory’ theory; Nichols, Stich, Leslie, & Klein, 1996). Either way, the child is able to use cognitive processes to understand what the other is feeling. An affective-cognitive feedback loop therefore exists, in which affective arousal primes attention and cognition, and cognition influences what is understood about these feelings (Davis, 1994; Feshbach, 1982; Hoffman, 2000; Strayer, 1993; Vreek & van der Mark, 2003).

### *Summary*

Although traditional conceptualizations of empathy were not universally endorsed, researchers have now reached agreement that empathy consists of both affective and cognitive processes. As greater consensus on the definition and conceptualisation of empathy has emerged, research has begun to focus more on how empathy can influence various aspects of a child’s development and their risk for psychopathology. This research is essential if we are to begin to determine ways of assessing and intervening with deviant empathic development.

### Normative and Atypical Empathic Development in Early Childhood

#### *Empathy in Typical Child Development*

Between birth and four to five years of age, children develop new ways of empathising with others. The developmental literature points to at least four basic

levels of empathy emerging in succession within this period (e.g., Hoffman, 2000; Johnson, 2000; Rochat, 2002). Each level corresponds closely with the child's social experience and cognitive development, especially the development of a separate sense of self, a sense of others and a sense of the relationship between the self and others (Bischof-Kohler, 1991; Hoffman, 2000; Zahn-Waxler & McBride, 1996) (see Table 2).

Table 2.

*The relationship between the development of self-concept (DesRosiers & Busch-Rossagel, 1997) and empathy*

Age	Self-Concept Stage behaviour	Empathy Stage behaviour
0-12 months	Self-other fusion joint attention	Global-egocentric reactive cry in newborns distress cry in response to another infant's cry imitate facial expressions
12-18 months	Self recognition identify own reflection	Quasi-egocentric concerned looks comforting behaviours early prosocial interventions
18-24 months	Self-representation acting upon objects during pretend play	Prosocial-active helping active interventions on behalf of distressed other
24 months	Self-description uses own name uses me or mine	Perspective taking express emotions and empathic concern verbally

*Global and egocentric empathy (0-12 months).* Early in life, the infant cannot distinguish his/her empathic distress from another's distress and has limited control over emotional reactivity. Empathic processes are therefore limited to passive and obligatory emotional contagion, whereby the perception of

emotions in others automatically evokes similar emotional experiences in the observer (see Hoffman, 2000). As a result, empathic affect is experienced as (often intense) emotional arousal without the cognitive sense of the other as an individual separate from the self. This is exemplified in studies where newborns in a nursery cry in response to other infants' cries (Martin & Clark, 1982; Sagi & Hoffman, 1976; Simner, 1971) and one-year-old children seek comfort to soothe their own arousal after witnessing the injury of another (Hoffman, 1990; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992).

It has been suggested that these early, rudimentary precursors of empathic affect represent an innate biological preparedness for empathy, which survived natural selection and is adaptive (Hoffman, 2000; Zahn-Waxler et al., 1992). If an infant is aroused by the displays of emotion in the parent (especially fear or distress), then the infant can use the caregiver's reaction to learn about their environment. For example, if the infant is aroused by their parent's distress in the presence of a snake, it can learn to fear snakes without more costly direct experience (Mineka & Cook, 1988; 1993; Mineka, Davidson, Cook, & Keir, 1984). This process has been illustrated empirically using the visual cliff paradigm, where social referencing to the mother determines whether or not the one-year-old infant will cross (Sorce, Emde, Campos & Klinnert, 1985).

This stage of empathic development may also exist to facilitate the caregiver-child bond (Darwin, 1998/1872; McDougall 1908; 1923; Plutchik, 1987). Infants and their caretakers are thought to use their emotional expressions to reinforce positive affect, transform negative affect, and provide breaks when arousal becomes too high (Malatesta & Haviland, 1982; Tronick, 1989). Such responsiveness is thought to organise behaviour (Campos, Barret, Lamb,

Goldsmith & Sternberg, 1983) and create a sense of security and efficacy (e.g. Bell & Ainsworth, 1972). This direct link may provide the basis for empathy and helping outside of the parent-child relationship.

*Quasi-egocentric empathy (12-18 months).* During the second year of life, with the beginnings of representational thought, children gradually begin to acquire a sense of the other as distinct from the self (Bruner, 1972; Piaget, 1967). For instance, they are able to recognise themselves in mirrors (Lewis & Brooks-Gunn, 1979). As Hoffman (1990) describes, “the child may now begin to be aware that although he or she feels distressed, it is not he or she but someone else who is actually in danger or pain” (p. 155). As a result, the intense emotional arousal to others’ distress during infancy is supplanted with more modulated affective expression and the beginnings of more constructive and thoughtful interactions (Zahn-Waxler et al., 1992). This represents the start of a key transformation in the development of empathy observed in the child’s experience and expression of empathic concern.

Empirical investigation of this stage of empathic development has largely consisted of behavioural observation. Hoffman (1978) noted that, at this age, children still appear to be unhappy when witnessing someone in distress, but their actions are more often clearly designed to help the victim. For example, he described a 14-month old boy who responded to a crying playmate by leading him to his own mother for comfort, although the friend’s mother was also present (Hoffman, 1978). Similarly, Radke-Yarrow and Zahn-Waxler (1984) observed a 15-month old girl who offered her toys and other items that were valuable to her, like her bottle, to a distressed playmate.

*Prosocial-active helping (18-24 months).* Transformations during the second year of life become increasingly organised as the child develops a more coherent sense of self. At this level, children begin to engage in systematic comparison, categorisation, and eventually conceptualisation of the self in relation to others. For example, they start construing how they should feel based on how others might feel about them, triggering embarrassment and other self-conscious emotions (Kagan, 1984; Lewis, 2000). They also gain a greater appreciation of the causes, correlates and consequences of emotions, particularly associated with facial expression (e.g. “Katie not happy face, Katie sad” Hoffman, 2000, p.73) and specific situations (e.g. “Grandma mad [because] I wrote on the wall” Hoffman, 2000, p. 73).

Once again, evidence for this stage of empathic development is largely anecdotal and based upon behavioural observations of toddlers, usually within laboratory settings. These reports indicate that the child’s empathic response is becoming increasingly directed at offering physical comfort to others. For example, Van der Mark (2001) described a 22-month old girl who, on witnessing her mother bang her knee, abandons her play, looks attentively and concernedly at her mother’s face, and embraces her mother.

*Perspective-taking (preschool period).* As cognitive capacities develop, so does the ability for role taking. By their third year, children are able to infer others’ inner states as different from their own, that is, they “know something the other does not know” (Lewis, Sullivan, Stranger & Weiss, 1989). This allows for more complex, cognitively mediated empathic experiences based upon knowledge of others’ thoughts and desires (Eisenberg et al., 1988; Hoffman, 2000; Strayer, 1993). Prosocial attempts to alleviate another’s distress increase in frequency

throughout the preschool period becoming more differentiated and attuned to others' needs, which the child now recognises may be different from their own (Zahn-Waxler, & Radke-Yarrow, 1982; 1990).

Increasingly sophisticated empathic processes incorporating cognitive role taking emerge at a time when the child's most crucial task is the successful initiation of peer relationships (Howes, 1987; Parker & Gottman, 1989). Empathy enables preschoolers to react appropriately to others' emotions, thus bolstering their relationships with their peers. For instance, it is suggested that the ability to share positive affect facilitates positive, cooperative and social interactions, and the ability to respond with concern motivates sharing, comforting and helping (Sroufe, Schork, Motti, Lawroski, & LaFreniere, 1984). As Denham and colleagues (2003) note, "if one child sees one peer bickering with another and correctly deduces that that child experiences fear or sadness, she may comfort the friend rather than retreat or enter the fray. Such interactions would be viewed as more satisfying rendering the playmate more likable" (p. 239). Empathy may also help the child understand others' thoughts and intentions. When two individuals feel similar emotions they are better able to understand each other, to take each others' perspective, and thus are more likely to accurately perceive each others' perceptions, intentions and motivations (Keltner & Kring, 1999; Levenson & Ruef, 1994). This increases the predictability of others' behaviour, a foundation of cooperative bonds (Anderson, Keltner & John, 2003).

Although empirical support for the relationship between empathy, prosocial behaviour and social competence has not been consistent (see Eisenberg & Miller, 1988), researchers have found strong links between these constructs when they have been assessed across methods and sources (e.g., laboratory tasks and verbal

indices). Empathy in preschool children has been associated with naturalistic observations and teacher ratings of prosocial behaviour (Eisenberg, McCreathe, & Anh, 1986; Howard, 1983), interpersonal competence (Bazar, 1977; Marcus, Roke, & Bruner, 1985), social responsivity in peer interactions (Iannotti & Pierrehumbert, 1985; Lopéz, Apadaca, Etxebarria, Fuentes, & Ortiz, 1998) and cooperation in the classroom (Iannotti, 1985). However, the correlational nature of the majority of the studies reviewed precludes an assessment of the causal relationship between these variables. It is therefore possible to conclude that prosocial behaviour and the successful formation of peer relationships precedes the development of empathy. Equally, empathy, prosocial behaviour and social competence could be linked by a common third factor such as temperament (Eisenberg & Fabes, 1990), early socialization practices (Zahn-Waxler & Radke-Yarrow, 1990) or the self-regulation of affect (Ungerer et al., 1990). In order to unravel these complex interactions, hypotheses need to be generated and tested in prospective longitudinal studies of empathic development.

*Empathy beyond the situation (Later childhood and adolescence).*

Prefrontal development and self-other differentiation allow the higher cognitive empathy-arousing processes to mature, enabling older children to empathise with an increasing variety of emotional states and with unseen others (in newspapers, books etc.). By 10 years of age children are able to empathise with another's general life condition, such as their poverty, oppression, vulnerability or illness, which can override empathy based on the immediate situation or personal cues. For example, seeing a terminally ill child happily playing is likely to induce empathic sadness or sadness mixed with joy rather than empathic happiness (Hoffman, 2000; Szporn, 2001). Similarly, as the child acquires the ability to

form social concepts, empathic distress may be combined with a mental representation of an entire group or class of people, for example, the homeless or victims of mass terrorism (Hoffman, 2000). This represents more advanced stages in the development of empathic ability.

*Summary.* The foregoing evidence indicates that, throughout early childhood, children develop increasingly sophisticated ways of empathising, from automatic emotional arousal in infancy to theories of mind in the preschool period (Hoffman, 2000). With increasing cognitive sophistication, there is a move toward empathic experience becoming more focused on the protagonist rather than upon events, and more focused upon internal psychological perspectives relative to that person than upon external events involving them. By the end of the preschool period, the child manifests the full range of empathic processes, at least in rudimentary form (Hoffman, 2000).

As empathy matures, the level of personal distress decreases whilst the appropriateness of helping behaviour increases (e.g. Zahn-Waxler, Friedman, & Cummings, 1983). This has important implications for a child's early encounters with others, and for the initiation of more stable peer relationships in the preschool period (Denham, 1998; Zahn-Waxler et al., 1982). The childhood ability to create and sustain effective relationships is a powerful predictor of mental health in adulthood (Denham & Holt, 1993; Robbins & Rutter, 1990). Children derive social support from peer relationships that leaves them better able to cope with life stress and that sustains their cognitive and social development.

A variety of factors, however, may interfere with the child's emerging abilities to empathise. For example, excess levels of foetal testosterone in the womb may disrupt the development of areas of the "social brain" involved in the

empathic response (Baron-Cohen, 2004). The normative acquisition sequence of empathy is therefore not only of interest from a developmental perspective, but has implications for our understanding of deviant empathic processes in psychopathology.

### *Empathy and atypical child development*

In recent years, investigators have begun to study the effects of deviant empathic development on a child's social and emotional competence (Gillberg, 1992; Izard, Fine, Mostow, Trentacosta, & Campbell, 2002). Gillberg (1992) has suggested a general empathy disorder as a characteristic component of many other disorders including autism, psychopathy, prefrontal damage, and even anorexia nervosa. Empathy disorders are characterised by impairments in the conception of mental states, expressions of emotions, and verbalisations of affective states due to dysfunction in the brain areas that subserve empathic processing (see Gillberg, 1992). Although extensive reviews of empathy disorders within adult populations are beginning to emerge (e.g., Cohen & Volkmar, 1997; Gilberg, 1999), research with child psychopathological populations remains relatively limited. Current findings link empathic deficits to a broad range of child disorders including attention deficit hyperactivity disorder (Braaten & Rosén, 2000), aggression (Cohen & Strayer, 1996), mood disorders (Zahn-Waxler, Cole, & Barrett, 1991) and autism (e.g., Charman et al., 1997) as well as children at risk of later disorder (e.g., Malik, Lederman, Crowson & Osofsky, 2002). An overview of empathy deficits in young children who exhibit aggressive traits or who have experienced maltreatment will be provided first, as an illustration of research in this area, followed by a more detailed exploration of empathic processes in young children with autism.

*Empathy and aggression.* Young children who exhibit aggressive behaviour have been shown to be at much higher risk for persistent and severe disorder than those children who show a later onset of behavioural disturbances (Moffit, 1993), and a lack of empathic arousal is considered a proximal mediator of such early antisocial problems (e.g. Frick, 1998). Theorists have argued that empathy reduces or inhibits aggressive behaviour towards others (Feshbach & Feshbach, 1982; Mehrabian & Epstein, 1972), and empirical findings provide some support for this assumption (Hughes & Dunn, 2000; Blair, 1999a; Strayer & Roberts, 2004b; Cohen & Strayer, 1996). School-aged children with aggressive or psychopathic traits are physiologically, facially and verbally less responsive than their non-aggressive counterparts to displays of distress in their peers (Blair, 1999a; Blair, Jones, Clark, & Smith, 1997; Ekman et al., 1972; Strayer & Roberts, 2004b).

The relationship between empathy and aggression is less clear in younger samples. Research with preschool children has yet to determine a significant inverse relationship between the two constructs (Gill & Calkins, 2003; Hastings et al., 2000; Zahn-Waxler et al., 1995). Yet early empathy deficits have been related to the development of disruptive behaviour disorder four years later (Hastings et al., 2000). These data provide useful information regarding the developmental trajectory of aggressive behaviour. It seems likely that empathy deficits arising in the preschool period predict future risk for the development of disruptive behaviour disorders. In turn, disruptive and aggressive behaviour compromises the formation of peer relationships in school-aged children (Boulton & Smith, 1994; Coie & Dodge, 1983; Coie, Dodge, & Kupersmidt, 1990; Parker & Asher, 1993), ultimately rendering the individual vulnerable to mental illness in

adulthood (Cantrell & Prinz, 1985). Further research is needed to clarify the pathways between early empathy deficits and later disorder and to determine effective methods for identifying individuals at risk of future psychopathology.

A related area of investigation has examined the role of empathy in indirect or relational bullying, defined as the induction of psychological rather than physical harm in the victim through gossip, exclusion or bitchy remarks (Hyde, 1984). This is the form of aggression most favoured by girls (Crick & Groptur, 1995). In contrast to direct bullies, relational bullies show good perspective-taking skills, when compared to their victims or supporters (Arsenio & Lemereise, 2001; Sutton, Smith & Swettenham, 1999). They are able to understand the mental states of others, and can use this understanding to their advantage. What they appear to lack, however, and what may differentiate them from prosocial children, is the ability to share the emotional consequences of their behaviour on the victim's feelings (Arsenio & Lemereise, 2001; Sutton et al., 1999).

Blair's (1995) Violence Inhibition Mechanism (VIM) provides a useful framework for understanding the development of empathy in the inhibition of aggressive behaviour. The VIM is conceptualized as a basic emotion mechanism which, when activated by distress cues, initiates a withdrawal, or behavioural inhibition, response. Blair (1995) speculates that a deficit within, or a failure to develop this mechanism might result in the development of aggressive behaviours seen particularly in psychopathic disorder. The child who engages in direct or indirect aggression may lack sufficient empathic arousal to activate the VIM and would therefore not inhibit his/her aggression when the victim displayed distress cues (Blair, 1995).

*Empathy and maltreated children.* Anecdotal reports from clinical observations indicate that young maltreated children, particularly those who have witnessed violence in their homes, also exhibit a lack of empathy in response to another's distress. Many act in a manner that appears overly controlled, where the child appears to perceive another's distress but actively ignores it or laughs (Malik et al., 2002). These observations are consistent with research by Main and George (1985) who showed that physically abused toddlers and preschoolers react to others' distress in unempathic ways by threatening or attacking them (see also George & Main, 1979; Klimes-Dougan & Kistner, 1990; van der Mark, IJzendoorn, & Bakermans-Kranenburg, 2002). These developmental deficits in empathy may have long-term effects on the child's social-emotional functioning (Eisenberg et al., 1996; Eisenberg, Losoya, & Guthrie, 1997) ultimately influencing his/her academic achievement (Pino & Herruzo, 2000) and length of placement in foster care (Landsverk, Davis, Ganger, Newton & Johnson, 1996).

Research with maltreated children has informed thinking about the quality of the parent-child attachment relationship, and the child rearing aspects of this relationship (e.g. sensitivity and discipline as well as culture, ethnicity and family context) in shaping empathic processes (Bischof-Köhler, 2000; Davies & Cummings, 1994; Webster-Stratton & Hammond, 1999). In the case of the abused child, it is noted that the parents are withdrawn and not socially interactive or empathic (Smith, 1975). Abused children are therefore unlikely to be exposed to adults who would adequately demonstrate empathic responses to others in distress or who would provide the nurturing relationship that is the context in which the learning of empathy takes place (Smith, 1975; Straker & Jacobson, 1981). These findings lend support to the suggestion that empathy has its

ontogenetic basis in the emotional linkage between parents and offspring (e.g. Osofsky, 1995). Clinical interventions that enhance the infant-caretaker relationship may therefore be pivotal in influencing the development of empathy and later wellbeing.

*Empathy and Autism.* Perhaps the most intriguing area of research into empathic development concerns the autistic child. Autism is a neurodevelopmental disorder characterised by a triad of impairments in communication, social understanding and rigidity of thought (Wing, 1996). The syndrome of autism with early childhood onset was first described by Kanner (1943). The particular variant that he delineated, characterised by aloofness and elaborate repetitive routines (Kanner & Eisenberg, 1956), is now considered only a portion of the autistic spectrum. This broader category also comprises, among other syndromes, the high functioning variant described by Asperger (1944) and referred to as Asperger syndrome (AS, Gillberg, 1991). AS is defined in terms of the individual meeting the same criteria for autism but with no history of cognitive or language delay (World Health Organisation, 1994). An additional variant, high-functioning autism (HFA) is given when an individual meets the criteria for autism in the presence of normal IQ. With the inclusion of broader phenotypes of autism, it has become clear that disorders in the autism spectrum are quite common, affecting about one in 200 individuals (Gillberg & Wing, 1999).

Whilst typically developing children learn the intricacies of social interaction almost effortlessly, the same is not true for the individual diagnosed with an autistic spectrum disorder (ASD). Widespread impairments in the social-communicative domain are manifest in many ways. For example, people with

ASDs often show inappropriate behaviours and language as well as a limited understanding of social norms and expectations (Frith, 1989; Baron-Cohen & Bolton, 1993). Their play is object-orientated, and they are often felt to treat people as furniture (Kanner, 1943). One mother writes of her autistic child “there was no connection with other human beings. I seemed no more important to him than a chair. He used my hand to pull open the refrigerator door for juice, as though the rest of me was just an unimportant accessory to the hand” (Sullivan, 1992, p. 247).

The idea that an empathy deficit may underpin the autistic triad of impairments is an old and widespread idea (Kanner, 1943; Frith, 1989; Gillberg, 1999). However, determining the underlying cause of this deficit has proved more controversial. Several accounts have been proposed, which relate the deficit in empathy to impairments in perception (Boucher & Lewis, 1991; Hobson, 1986; Shah & Frith, 1993), executive function (Russell, 1996) or attention for social stimuli (Dawson, 1991). However, it is the mindblindness theory of autism (Baron-Cohen, 1995) and its extension into empathising theory (the extreme male brain theory of autism, Baron-Cohen, 2002) that has been studied most widely. This theory proposes two major psychological dimensions: empathising, the drive to identify another person’s emotions and thoughts and respond to these with an appropriate emotion; and systemising, the drive to understand and predict the law governed inanimate universe. In autism spectrum conditions deficits in the normal process of empathising, relative to mental age, occur alongside “islets of ability” or special abilities in the systemising domain (Baron-Cohen, 2002). Systemising is therefore hyperdeveloped whereas empathising is hypodeveloped. This may account for the abnormalities in social development and communication

that characterise ADSs as well as the strong obsessional preoccupation with closed, rule-governed systems (e.g. computers, bird-migration, train spotting).

Consistent with Baron-Cohen's (2002) theory, preliminary research findings with young children indicate that, from early in infancy, individuals with autism are impaired in their empathic response. In infancy, this may manifest as a lack of ability to respond to or imitate their mothers' smiles (Adrien et al., 1993; Hobson, 1986). In other words, individuals with ASDs do not exhibit a biologically based ability to respond empathically to others (Hobson, 1986). This may underlie what Hobson (1986) calls "their limited intellectual (cognitive) grasp of other persons as persons with their own mental life" (p. 204). In later infancy (aged 20 months onwards), there is also evidence to suggest that children with autistic symptoms are impaired in response to signals of emotional distress in others (Charman et al., 1997; Dawson, Meltzoff, Rinaldi, & Osterling, 1996; Sigman, Kasiri, Kwon, & Yirmiya, 1992; Yirmiya, Sigman, Kasari, & Mundy, 1992). This impoverished empathic response entails reduced orientation to (and perhaps recognition of) the distress display, reduced matching of facial affect, and reduced prosocial "empathic" responding to the protagonist in comparison to children with moderate learning disabilities or typically developing controls matched for mental age (Bacon, Fein, Morris, Waterhouse, & Allen, 1998; Charman et al., 1997; Sigman et al., 1992; Yirmiya et al., 1992).

Contrasting reports suggest that children with autism are not entirely unresponsive to the socio-affective cues of those around them. A pioneering study by Blair (1999b) showed that school-aged children with autism exhibited electrodermal and cardiovascular changes in response to the sadness of others. Furthermore, two out of 20 children tested found another's sadness aversive.

They placed their hands in front of their eyes when a distress cue was presented to them and refused to look at it. This finding does not imply that children with autism emotionally “experience” the distress of others in the same way that normally developing children do. However, it is possible to conclude that they are capable of experiencing an emotion having witnessed the distress cues of others. This conclusion suggests that children with autistic traits may possess at least the physiological element of the affective component of empathy.

A similar pattern has arisen when empathy has been examined through observation and analysis of preschool children’s responses to caregivers and adults who pretended to be hurt or ill (Bacon et al., 1998; Charman et al., 1997; Sigman et al., 1992). As a group, children with autistic spectrum conditions show a lower production of empathic responses. However, analysis at an individual level indicates that these differences are not large and are not uniform across the sample. For instance, Charman and colleagues (1997) noted that half of the infants with autism looked at the experimenter when the experimenter feigned distress and that one infant was rated as showing facial concern, evidence of an empathic response (Sigman et al., 1992; Zahn-Waxler et al., 1992). Among children with higher functioning ASDs (IQ 80 or above), nearly all were reported to orientate to the simulated distress in the experimenter (Bacon et al., 1998). Taken together, these findings suggest that children with autism do not figure “in about the same manner as... the desk, the bookshelf, or the filing cabinet” as initially suggested by Kanner (1943, p. 38). Instead they appear to demonstrate a pattern of intact abilities as well as impairments in these early-emerging empathic skills.

The study of empathic abilities in younger children with autism is of great clinical value for several reasons. Firstly, it will have implications for our understanding of the atypical development of social communication in autism, and further our understanding of the developmental trajectory of empathy in the normal child. As Shanker (2004) reports, “autism may hold the key to one of the deepest enigmas that has troubled philosophers for the past three and a half centuries: How does a child come to know what another human being is thinking and feeling” (p. 219).

The study of empathy in autism is also of use from a therapeutic perspective. The observation that certain social communication behaviours in the domain of empathy are intact (Blair, 1999b; Charman et al., 1997) gives a starting point for interventions with even the youngest children seen in child development clinics for autism. Preliminary research evidence suggests that early intervention programmes that teach and shape empathic responses to the emotional displays of others can yield significant benefit over time (see Rogers, 1996, for a review). Specific techniques include the use of social stories or mind reading exercises which present a scenario and discuss with the child the resulting facial expressions or underlying emotions (Gray, 1994; Gray & Garand, 1993; Howlin et al., 1999; Swaggert et al., 1995). More recently, interest in adapting these techniques to computer-aided or interactive virtual learning environments has prospered (e.g., Baron-Cohen, Hill, Golan & Wheelwright, 2002; Cheng, Moore & McGrath, 2002; Parsons & Mitchell, 2002; Silver & Oakes, 2001). Such intervention efforts may be especially useful and engaging for individuals with high-functioning ASDs, who are often seen as wanting social contact but lacking the skills to be successful in this (Green, 1993; Jordan, 1993). However, it is unclear how

effective these techniques would be for a child with low-functioning autism, for whom the other person may not exist at all.

Finally, the study of empathic processes in children with autism, as well as other neurodevelopmental disorders (e.g., William's Syndrome, Lesch-Nyhan syndrome) or focal brain lesions, provides an opportunity to investigate the neural circuitry of empathising as it relates to specific behavioural phenotypes (Baron-Cohen et al., 1999; Carr, Iacoboni, Dubeau, Mazziotta & Lenzi, 2001). At a cellular level, one intriguing area of research concerns the discovery of "mirror" neurons (di Pellegrino, Fadiga, Fogassi, Gallese & Rizzolatti, 1992), neurons that fire not only when the individual executes an action but also when the individual observes another performing the same action (Gallese, Fadiga, Fogassi & Rizzolatti, 1996). Although mirror neurons are primarily thought to be involved in the perception and comprehension of motor actions (Rizzolatti, Fogassi, & Gallese, 2001), they may also play a critical role in empathy, enabling the observer to automatically recognise, understand and imitate the sensations and emotions of others (Gallese, 2001, Gallese, Ferrari & Umiltà, 2002; Preston & de Waal, 2002). In this way, they might provide concrete cellular evidence for the shared representations of affect in empathy that were originally postulated by Lipps (1903). Recent evidence indicates that mirror neurons are absent in children with autism (Theoret et al., 2005; Oberman et al., in press). There is also neuroanatomical evidence of abnormal development of regions of the limbic system and cerebellum in autistic disorder (Baron-Cohen & Ring, 1994; Baron-Cohen et al., 1994; Bauman & Kemper, 1994; Kemper & Bauman, 1993; 1998). Conceptualising ASDs as empathy disorders may teach us something about the neurodevelopmental and genetic basis of empathy (e.g., Baron-Cohen, 2004).

### *Summary*

The foregoing review has highlighted the potentially adverse effects of deviant or delayed empathic development upon a child's social-emotional abilities and later functioning in adulthood. It seems that as the child faces new developmental challenges that require adaptation, more complex empathic processes are required. Evidence reviewed in the first part of the paper suggests that children who have competent empathic processes can respond appropriately to these new challenges and develop further empathic knowledge within their peer relationships. In contrast, early empathic incompetence may promote later incompetence as the child progresses through each developmental stage with less than optimal resources to respond to the challenge of that period (e.g. Cicchetti & Cohen, 1995). This may ultimately render the individual susceptible to mental illness in adulthood.

An important research question arising from this literature concerns the identification of preschool children whose empathic development is delayed, placing them at risk for later disorder. Effective assessment tools are required that help professionals and family members to recognize that a young child's empathic developmental trajectory is prematurely narrowing or is off-course and therefore ensure their access to early intervention services.

### Measuring Empathy in Early Childhood

The measurement of empathy presents distinct challenges to researchers, clinicians and teachers. Effective assessment presupposes an understanding that is only now beginning to emerge of the characteristics of healthy empathic development and of mechanisms of risk and protection. Furthermore, empathy implies a specific subjective emotional experience and is therefore not amenable

to direct assessment. Consequently, inferences must be made on the basis of physiological, facial or verbal responses.

A considerable amount of effort has been devoted to assessing empathy in school-aged children (Bryant, 1982; Funk, Elliott, Pasold & Tsavoussis, 2003; Garton & Gringart, 2005; Livack-Miller, McDougall, & Romney, 1997; Niec & Russ, 2002). This research has yielded numerous psychometric self-report instruments including the Feeling and Thinking Instrument (Garton & Gringart, 2005) and the Bryant Empathy Scale (Bryant, 1982). These tools provide a convenient and economical method for measuring dispositional empathy traits across a broad range of research and clinical settings. The Bryant Empathy Scale (Bryant, 1982), for example, has been used in more than 40 empirical studies (e.g., Ascione & Weber, 1996; Hall & Geher, 2003; Valiente et al., 2004). However, the use of these instruments with preschool children has been limited because of the level of cognitive and verbal capacity required for their completion. Researchers have therefore sought alternative verbal and nonverbal methods (see Table 3)<sup>1</sup>.

Feshbach and Roe (1968) pioneered the use of verbal affect match as a self-report index of empathic ability in young children. This type of assessment is designed to tap situational empathy, a transient affective reaction elicited in concrete situations. Feshbach and Roe's (1968) measure, the Affective Situation Test of Empathy (FASTE, Feshbach & Roe, 1968), consists of a series of slide sequences in which protagonists, the same age and sex as the child observer, are

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<sup>1</sup> The observation and coding of prosocial behaviours has also been used to assess empathy in young children. These methods are based on the assumption that empathy equals prosocial behaviour. However, empathy can be observed in infants long before any capacity for prosocial behaviour occurs (Hay et al., 1981). In addition, empathy can be expressed through what is considered primitive or more basic behaviours that do not require the complexity of prosocial acts (Hoffman, 1982). It is therefore important to differentiate between the two constructs.

Table 3

*Studies of Empathy in Preschool Populations*

Study	Preschool Sample	Measures	Findings
Bacon, Fein, Morris, Waterhouse, & Allen (1998)	<ul style="list-style-type: none"> <li>▪ 42 developmental language disorders</li> <li>▪ 32 high functioning autism</li> <li>▪ 51 low functioning autism</li> <li>▪ 39 mental retardation</li> <li>▪ 29 typically developing controls</li> </ul>	<ul style="list-style-type: none"> <li>▪ Behavioural observation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low functioning autistic group evidenced pronounced deficits in empathic responding in all situations. HFA and MR group showed awareness but limited empathic responding.</li> </ul>
Bazar (1977)	<ul style="list-style-type: none"> <li>▪ 72 typically developing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Verbal affect match</li> </ul>	<ul style="list-style-type: none"> <li>▪ Positive relationship between empathy and teacher ratings of interpersonal competence.</li> <li>▪ NS relationship between empathy and teacher ratings of prosocial behaviour</li> </ul>
Charman, Swettenham, Baron-Cohen, Cox, Baird, & Drew (1997)	<ul style="list-style-type: none"> <li>▪ 10 autistic symptoms</li> <li>▪ 9 developmental delay</li> <li>▪ 19 typically developing controls</li> </ul>	<ul style="list-style-type: none"> <li>▪ Behavioural observation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Children with autism significantly impaired on empathy indices compared with two control groups</li> </ul>
Cohen (1974)	<ul style="list-style-type: none"> <li>▪ 72 typically developing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Verbal affect match</li> </ul>	<ul style="list-style-type: none"> <li>▪ NS relationship between empathy and peer/teacher ratings of prosocial behaviour</li> </ul>
Cole, Zahn-Waxler, Fox, Usher, & Welsh (1996)	<ul style="list-style-type: none"> <li>▪ 79 typically developing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Physiological indices</li> <li>▪ Facial indices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Empathy-related responding associated with fewer externalising problems</li> </ul>
Dawson, Meltzoff, Rinaldi & Osterling (1996)	<ul style="list-style-type: none"> <li>▪ 20 autism</li> <li>▪ 20 Down's Syndrome</li> <li>▪ 20 typically developing controls</li> </ul>	<ul style="list-style-type: none"> <li>▪ Behavioural observation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Autism group were less likely to orientate to others' distress in comparison to other</li> </ul>
Eisenberg, McCreathe, & Ahn (1985)	<ul style="list-style-type: none"> <li>▪ 60 typically developing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Verbal affect match</li> <li>▪ Facial indices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Positive relationship between empathy and spontaneous prosocial acts</li> </ul>

(continued on next page)

Table 3 (*continued*)

Studies	Preschool Sample	Measures	Findings
Gill & Calkins (2003)	▪ 90 categorised as high or low in externalising behaviour	▪ Behavioural observation ▪ Physiological indices	▪ Positive correlation between empathy and aggressive behaviour
Hastings, Zahn-Waxler, Robinson, Usher & Bridges (2000)	▪ 82 categorised as low, moderate or high rates of externalising behaviour	▪ Physiological indices ▪ Behavioural observation	▪ NS relationship between concern for others and aggressive behaviour in the preschool period ▪ Deficits in empathic behaviour predicted externalising problems four years later
Howard (1983)	▪ 35 typically developing	▪ Verbal affect match ▪ Facial indices	▪ Positive relationship between empathy and observations of facial display. ▪ Positive relationship between unsolicited helping and empathy in girls only ▪ Positive relationship between empathy and compliant helping in boys only
Hughes & Dunn (2000)	▪ 40 conduct problems ▪ 56 matched-typically developing controls	▪ Verbal affect match	▪ Conduct disorder group significantly less empathic than typically developing controls
Iannotti (1985)	▪ 52 typically developing	▪ Verbal affect match	▪ Positive relationship between empathy and cooperation in classroom ▪ NS relationship between empathy and teacher ratings of prosocial behaviour
Iannotti & Pierrehumbert (1985)	▪ 46 typically developing	▪ Verbal affect match	▪ Positive relationship between observations of social responsibility in peer reactions ▪ NS relationship with observations of peer play

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Table 3 (*continued*)

Studies	Preschool Sample	Measures	Findings
Kasari, Freeman, & Buss (2003)	<ul style="list-style-type: none"> <li>▪ 30 Downs Syndrome</li> <li>▪ 20 learning difficulties of non-specific aetiology</li> <li>▪ 22 matched-typically developing controls</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ Children with Downs Syndrome less able to empathise with others in hypothetical scenarios than typical controls</li> </ul>
Klimes-Dougan & Kistner (1996)	<ul style="list-style-type: none"> <li>▪ 11 children who had experienced abuse</li> <li>▪ 10 matched-typically developing controls</li> </ul>	▪ Behavioural observation	<ul style="list-style-type: none"> <li>▪ Physically abused sample were less empathic than matched controls</li> </ul>
Knudson & Kagan (1982)	<ul style="list-style-type: none"> <li>▪ 88 typically developing</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ NS relationship between empathy and altruism</li> </ul>
Kuchenbecker (1977)	<ul style="list-style-type: none"> <li>▪ 99 typically developing</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ NS relationship between empathy and sharing with peers</li> </ul>
Lennon, Eisenberg, & Carroll (1985)	<ul style="list-style-type: none"> <li>▪ 35 typically developing</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ NS relationship between empathy and helping behaviour</li> </ul>
Main & George (1985)	<ul style="list-style-type: none"> <li>▪ 10 children who had experienced physical abuse</li> <li>▪ 10 matched controls from families experiencing stress</li> </ul>	▪ Behavioural observation	<ul style="list-style-type: none"> <li>▪ Children who had been physically abused were less empathic than matched controls</li> </ul>
Marcus, Roke, & Bruner (1985)	<ul style="list-style-type: none"> <li>▪ 32 typically developing</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ Positive relationship between empathy and teacher ratings of cooperative social behaviour</li> </ul>
Ricard & Kamberk-Kilicci (1995)	<ul style="list-style-type: none"> <li>▪ 30 typically developing</li> </ul>	▪ Verbal affect match	<ul style="list-style-type: none"> <li>▪ Fewer empathic responses to complex emotional scenarios</li> </ul>
Sigman, Kasari, Kwon, & Yirmiya (1992)	<ul style="list-style-type: none"> <li>▪ 12 autism</li> <li>▪ 12 mental retardation</li> <li>▪ 18 typically developing controls</li> </ul>	▪ Behavioural observation	<ul style="list-style-type: none"> <li>▪ Autistic group demonstrated less empathic behaviours towards adults in distress</li> </ul>

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Table 3 (*continued*)

Studies	Preschool Sample	Measures	Findings
Yirmiya, Sigman, Kasari, & Mundy (1992)	<ul style="list-style-type: none"> <li>18 high functioning autism</li> <li>14 matched typically developing controls</li> </ul>	<ul style="list-style-type: none"> <li>Verbal affect match</li> </ul>	<ul style="list-style-type: none"> <li>High functioning children diagnosed with autism performed less well than normally developing on measures of empathy</li> </ul>
Zahn-Waxler, Cole, Welsh & Fox (1995)	<ul style="list-style-type: none"> <li>82 categorised as low, moderate or high risk for developing disruptive behaviour disorder</li> </ul>	<ul style="list-style-type: none"> <li>Physiological indices</li> <li>Facial indices</li> <li>Verbal affect match</li> <li>Social cognitions</li> </ul>	<ul style="list-style-type: none"> <li>Physiological, facial and verbal indices similar across all risk groups</li> <li>High and moderate groups performed less well on social cognitions than low risk group</li> </ul>

shown in four different affect-eliciting situations depicting happiness, sadness, anger and fear. After presenting the slide sequence, the child is asked, "How do you feel?" Responses are recorded verbatim and are later assigned empathy scores based on their accuracy, that is, on the extent to which they approximate the investigators' judgement of the affect conveyed in the story. This technique has been used across a wide range of research studies, often in a revised form (see Table 3). For example, Iannotti and Pierrehumbert (1985) modified FASTE to include illustrated stories in which the facial response of the child in the story was inappropriate to the situation (e.g. a boy frowning at his birthday party). In general, findings from these studies have established the validity of verbal affect-match scores as an index of empathic ability (Kuchenbecker, 1977; Strayer, 1993).

Eisenberg, Strayer and others (Eisenberg et al., 1991; 1994; Eisenberg & Fabes, 1990; Strayer & Chisholm, 1995; Strayer & Roberts, 1997) adapted

Feshbach and Roe's (1968) technique to assess nonverbal aspects of empathy. In empirical investigations, the facial expressions and/or heart rate of young children are recorded whilst they observe slide sequences of positive emotional scenarios (e.g., child at a party) or negative emotional scenarios (e.g., child crying in war scene). High empathy scores are awarded to children whose facial expressions and physiological arousal are highly concordant with the emotion portrayed in the experimental stimuli. Although these techniques have not been as popular as verbal indices (see Table 3), they have enabled researchers to tap the child's empathic affect independently of conscious experience or verbal report. This has made them especially appealing for use with toddlers (aged 24 months or younger) and children with learning disabilities who lack the verbal skills or introspection to describe their feelings (e.g., Liew et al., 2003).

Whilst various verbal and nonverbal methods have successfully advanced our understanding of the correlates of typical and atypical empathic development in the preschool period, there are no formal psychometric tests for assessing empathy in this age group. The ensuing section reviews the practical, methodological and theoretical limitations of existing measures in order to inform the future development of an effective instrument to assess empathy in preschool children (see also Zhou, Valiente, & Eisenberg, 2003).

#### *Limitations of Current Measures*

*Practical limitations.* Existing assessment procedures are often cumbersome and require lengthy data analysis to determine a child's score. For example, Blair (1999a; 1999b) required the use of a slide projector, Beckman Ag-AgCl electrodes, a constant voltage Biosystems SCL 200 system and computer to investigate physiological empathic arousal in children with autism and

psychopathy traits. Similarly, facial indices must be objectively and reliably coded using either a detailed microanalytic coding system (e.g., Maximally Discriminative Facial Coding System, Izard; 1982) or whole-face scoring system (Affective Expressions Scoring System; Izard, 1982) developed specifically for the assessment of emotional expressions in children. Whilst these difficulties have been effectively overcome in the laboratory, they present serious limitations for researchers and clinicians working in clinics or preschools.

*Methodological limitations.* Current tools have also been criticised for their inattention to the needs and abilities of preschool children (e.g., Denham, 1986; Lennon, Eisenberg & Carroll, 1985; Zhou et al., 2003). For example, the majority of research has employed emotionally-evocative still pictures, slide sequences or verbal stories that may not be sufficient to evoke empathy in the young observer. Whilst school-aged children are able to empathise with others based on information gained indirectly through stories or in pictures, young children's empathic capacity is limited to naturalistic events or dramatised stimuli depicted on television (Hoffman, 2000).

The social context in which the tools are embedded may also influence the validity of the measures. Howard (1983) and Iannotti (1985) showed that verbal measures of empathy were associated with public and requested prosocial behaviours but negatively related to spontaneously emitted prosocial behaviour. These findings suggest that verbal responses to picture stimuli may reflect an orientation to seeking approval from adults and/or the tendency to behave in socially expected ways. Furthermore, research findings have shown that children scored higher on verbal indices when interviewed by same-sex rather than other-sex experimenters (Eisenberg & Lennon, 1983; Lennon et al., 1983). Given that

the majority of experimenters in studies conducted in the 1980s were women (see Eisenberg & Miller, 1988), this finding raises important questions regarding the validity of the current database.

Finally, many of the verbal tools have been criticised for being cognitively complex and requiring verbal responses, which young children may struggle to provide. Within the broader domain of emotional competence, a number of investigators have been successful in using more contextualised measures with young children (e.g., Denham, 1998; Hughes & Dunn, 2000). These measures often use puppets or other devices to involve the child and minimise verbalisations and processing demands. Children as young as two years old can clearly demonstrate an understanding of emotional stimuli, in a limited way, when such measures are used (Denham, 1998).

*Theoretical issues.* Perhaps the most crucial limitation of current measures concerns the overly restrictive operational definition of empathy. To date, most studies in the preschool period have defined and assessed empathy as a vicarious emotional response to another's facial expression or situational context. This has precluded an analysis of the more complex cognitive dimensions of the empathic response, which emerge in the preschool period.

Zahn-Waxler and colleagues (1995) provided one of the only studies that operationalised empathy as a cognitive-affective process. They examined empathy-related responding in preschool children categorised as high, low or at moderate risk for developing disruptive behaviour disorders. Whilst affective empathic responding was similar across the sample, high and moderate-risk children were less able than their low-risk counterparts to engage cognitively with distressed victims. This finding suggests that a broader focus on empathy,

encompassing cognitive aspects, may be more advantageous in investigating individual differences in empathic development.

In summary, this review highlights the need for a tool that is convenient and economical to administer, sensitive to the needs of young children and that encompasses current understanding of empathy in early childhood. From the standpoint of research potential, such a measure could provide a baseline for investigating and comparing empathic development across a range of atypical child samples. Clinically, an instrument based upon the normative acquisition of empathy could assist in the identification of preschool children whose empathic development is deviant or delayed and who would therefore benefit from intervention.

### Synthesis and Future Directions

The present paper has reviewed the development of empathy in early childhood. The preschool period has emerged as a key phase in the development of increasingly sophisticated empathy processes and of peer relationships, both of which underlie adaptive psychosocial development in later childhood. This developmental perspective has several important implications for developmental and clinical psychologists.

Firstly, it suggests that deviant or delayed empathic processes may play an important role in the development of disorder. Thus, a consideration of empathic dimensions may usefully strengthen current models of psychopathology. Preliminary research with children with autistic or aggressive traits illustrates distinct deficits in the apparatus for empathy, as well as obvious differences in the quality of the empathic deficiency between the two conditions. Young children who display autistic symptoms appear to lack the ability to represent the internal

state of another's mind (Frith, 1989), yet may be sensitive to seemingly trivial emotional cues (e.g., Yirmiya et al., 1992). In contrast, children at risk of developing behavioural disorders exhibit low levels of empathic arousal in response to distress displays (Strayer & Roberts, 2004a) but have acute affective perspective-taking skills (Arsenio & Lemerise, 2001). More detailed research is required that specifies the sources of individual variation in empathic development as well as empathy processes that serve as protective factors or as risk factors for later psychosocial outcomes. It is of note that all of the studies reviewed in the present paper assessed preschool children from Western cultures. Consequently, the database is heavily skewed and may not generalize to other groups and settings. Cross-cultural research is needed to determine whether this developmental sequence is universal or a reflection of Western ethnography.

Secondly, there is a general consensus in the literature that empathy is a flexible human capacity and is susceptible to clinical intervention. Examples of this include the reeducation of antisocial personalities (Marshall, 1999; Serin & Kuriychuk, 1994), training of psychotherapists and physicians (Rogers, 1975; 1980), but more relevant, interventions for young, at-risk children (Feshbach, 1979; 1983; Feshbach, Feshbach, Fauvre, & Ballard-Campbell, 1983). Evidence suggests that even as early as the preschool years, emotion-centered preventative interventions may facilitate the development of empathy and positive social behaviour (Denham, 1986; Eisenberg & Hand, 1979; for a review, see Mundy & Crowson, 1997). The preschool period may provide the most effective time to implement such interventions (Izard et al., 2002). Empathy is an emergent state and therefore presumed to be more susceptible to clinical intervention at this stage of development (Robinson & Little, 1994). Moreover, strengthening a young

child's empathic capacity before they enter the school environment may serve a protective function for their peer relationships and academic success (Izard et al., 2002; Webster-Stratton & Reid, 2004). In general, this work could help bridge the considerable gulf that exists between the status of emotion science and its application within clinical settings.

Finally, our knowledge of empathy in young children is still limited and highly speculative (see also Hoffman, 2000; Preston & de Waal, 2002). Methodological limitations associated with the operationalisation and measurement of empathy in typical and atypical samples have prohibited firm conclusions about empathy in early childhood. Knowing more about the nature and development of empathy will set the groundwork for the opportunity to intervene at very early ages with the aim of enhancing children's social competence. The development of an effective psychometric tool to assess empathy in a child's early years represents an important first step within this area of research.

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Empirical Paper

CONSTRUCTION AND EVALUATION OF THE SOUTHAMPTON TEST OF  
EMPATHY IN PRESCHOOLERS: A COMPUTERISED SELF-REPORT SCALE FOR  
ASSESSING EMPATHY IN YOUNG CHILDREN

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**Construction and Evaluation of the Southampton Test of  
Empathy in Preschoolers: A computerised self-report scale for assessing  
empathy in young children**

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*Running Header:*

Measuring Empathy in Preschool Children

## Abstract

Empathy in the preschool period is a central predictor of later social functioning (Hoffman, 2000), yet there are no psychometric instruments for measuring individual differences in this domain. This study investigated a new self-report instrument, the Southampton Test of Empathy in Preschoolers (STEP). The test incorporated four distinct but conceptually related tasks, each assessing the child's ability to understand and share in the emotional experience of a child protagonist. Experiment 1 assessed the underlying structure of the instrument. The test blueprint and potential scale items were identified upon which 4 independent developmental researchers and 14 preschool teachers then commented. These items were administered to a sample of 21 preschoolers (10 girls, 11 boys), aged 48 to 59 months, in cartoon format and the final items for STEP were selected on the basis of item analysis. Experiment 2 explored the reliability and validity of STEP. Items were developed into video vignettes and piloted within a computer game on a sample of 10 preschool children (6 girls, 4 boys), aged 46 to 52 months. The final instrument was then readministered to 39 preschool children (18 girls, 21 boys), aged 40 to 53 months, and internal reliability and construct validity were established. The results highlighted good internal consistency, concurrent validity with parent-rated empathy, and convergent validity with teacher-rated prosocial behaviour. Results are discussed in terms of recommendations for replication and further research.

## Introduction

Empathy is one aspect of emotional competence that is integral to social relationships (Anderson, Keltner, & John, 2003; Hoffman, 2000). It enables us to tune into how others are feeling or what they might be thinking. Empathy also allows us to understand the intentions of others, predict their behaviour, and experience an emotion triggered by their emotion. In short, empathy is “the glue that makes social life possible” (Hoffman, 2000, p. 3).

Despite the importance of empathy, it has been a difficult concept to define and measure. Within psychology, a general consensus has emerged, which defines empathy as a synthesis of cognitive and affective responsiveness to the perceived emotional state of another (Eisenberg, 2000; Hoffman, 2000; Preston & de Waal, 2001; Vreek & van der Mark, 2003). For example, Eisenberg (2002) defines empathy as “an affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and that is similar to what the other person is feeling or would be expected to feel” (p. 135).

Hoffman (2000) has extended these basic definitions within a comprehensive model of empathic arousal, describing the interplay between cognitive and affective empathy and behaviour from infancy to adulthood. The model incorporates five distinctly different empathic modes, summarised in Table 1. Mimicry, direct association and classical conditioning are affective modes that require minimal cognitive processing. They underlie empathic arousal in the preverbal years and provide an important involuntary dimension to empathy throughout life enabling the individual to automatically empathise with others’ facial expressions and situational contexts (Hoffman, 2000).

Table 1

*Five Modes of Empathic Arousal (Hoffman, 2000)*

Empathic Mode	Description
Mimicry	The observer unconsciously imitates the subject's facial expression, which triggers afferent feedback and produces feelings in the observer that match the feelings of the subject.
Classical Conditioning	Empathic feelings are conditioned responses obtained from observing someone's emotional reaction at the same time the observer has had their own independent emotional experience. The subject's facial expression can therefore evoke emotional experiences in the observer.
Direct Association	Cues in the subject's situation remind the observer of similar experiences in their own past and evoke feelings in them that fit the subject's situation.
Mediated Association	The subject's emotional state is communicated through language. Verbal messages about the subject's emotional state must be semantically processed and decoded by observers, triggering empathic affect.
Perspective-Taking	The observer puts him/herself in the subject's place and imagines how the other feels (other-focused role-taking) or how they would feel in the subject's situation (self-focused role-taking).

As the child enters the preschool period, Hoffman (2000) suggests that affective processes become mediated by the increasingly complex cognitive modes of mediated association and perspective-taking. These processes are underpinned by a more general understanding of others as active and intentional agents, whose behaviour is driven by goals and desires (Baron-Cohen, 2004). Higher-order cognitive modes enable the preschool child to respond empathically to a wider range of emotional stimuli based on others' verbal emotional expressions and knowledge of their desires (e.g., Harris, Johnson, Hutton, Andrews, & Cooks, 1989; Stein & Trabasso, 1989). From this point on, the child becomes increasingly sensitive to personal factors that will modulate others' emotional reactions (Harris & Saarni, 1989), including individuals'

personal beliefs (Gnepp, Klayman, & Trabasso, 1982) or information about their past experience (Gnepp & Gould, 1985; Gnepp & Klayman, 1992).

Increasingly sophisticated empathic processes incorporating perspective taking emerge at a time when the child's most crucial task is the successful initiation of peer relationships. Theorists have argued that empathy facilitates the ease with which the young child successfully negotiate the challenging peer arena, contributing to (a) cooperative and prosocial behaviour (Eisenberg et al., 1996; Roberts & Strayer, 1996), (b) active initiation and maintenance of an array of peer friendships and adult relationships (Denham, 1998; Zahn-Waxler, Iannotti, & Chapman, 1982), and (c) management of aggression and conflict (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000; Hughes & Dunn, 2000; Strayer & Roberts, 2004). This strengthens the child's social functioning (Zhou, Valiente, & Eisenberg, 2002) and academic performance (Petrides, Frederickson, & Furnham, 2004), thereby predicting their later mental health and wellbeing (e.g., Denham & Holt, 1993). By four years of age, children who are unable to respond to the emotional needs of others, and react antisocially rather than prosocially to others' distress, are at risk of being rejected by their peer group (Denham, McKinley, Couchoud, & Holt, 1990) and of developing mental illness in adulthood (Izard, Fine, Mostow, Trentacosta, & Campbell, 2001; Parke & Slaby, 1983). Empathy therefore represents an early indicator of individual differences that facilitates the understanding and prediction of later adaptation and socially significant behaviour (Izard et al., 2002).

A range of self-report tools have been developed to measure empathy in school-aged children (e.g., Funk, Elliott, Pasold, & Tsavoussis, 2003; Garton & Gringart, 2005). No psychometric tests are, however, currently available to

assess empathic ability in children less than five years of age. Previous researchers have employed verbal measures (e.g., Kasari, Freeman, & Bass, 2003) or measures of facial display (e.g., Zahn-Waxler, Cole, Welsh, & Fox, 1995) and physiological change (e.g., Gill & Calkins, 2003) to investigate empathy in this age group. Typically, the child is presented with a series of slide sequences in which a protagonist, the same age and sex as the child observer, is shown in four different affect-eliciting situations, depicting happiness, sadness, anger and fear. Empathy is operationalised as the degree of match between the child's physiological, facial or verbal response and the story character's emotional state. These procedures are fully described elsewhere (Zhou et al., 2003).

Whilst these instruments have successfully furthered our understanding of affective empathy in a child's early years, they evidence a number of methodological weaknesses including: (1) the use of cumbersome equipment and lengthy data analysis; (2) cognitively complex tasks, which require verbal responses that young children may struggle to provide (Denham, 1986; Iannotti, 1985); (3) social desirability bias arising from interactions between the experimenter and the child (Lennon, Eisenberg, & Carroll, 1983); and (4) picture stimuli that are insufficient to evoke empathy in young children (Strayer, 1993). In addition, the measures have not kept pace with important refinements in the operationalisation of empathy and related developmental theory (Cicchetti & Toth, 1998; Kazdin, 1999). This review highlights the need for an instrument that explicitly considers the needs and abilities of young children, and that encompasses the emergence of affective-perspective taking in the preschool period.

The current paper focuses on an initiative to develop a new tool to measure empathy in preschool populations: the Southampton Test of Empathy in Preschoolers (STEP). The instrument captures the multidimensional nature of empathy in a series of distinct but conceptually related tasks, each assessing the child's ability to understand and share in the experience of another person. This structure permits an investigation of empathy as a broad construct but also has the potential to provide a more detailed analysis of each of the construct's components (i.e. cognitive vs affective; as a multistage process). STEP therefore provides a better measure to use in individual differences research examining the interplay between empathy and other factors. This includes the role of independent factors on empathy (e.g. family context, attachment style, pervasive developmental disorders) and the role of empathy as an independent factor contributing to other developments (e.g. social interactions, peer acceptance, psychiatric disorders).

STEP improves on the limitations of previous research tools. It incorporates quasi-naturalistic and dramatic videotaped vignettes of young children in emotionally-evocative scenarios. Respondents are required to indicate their reactions to the stimuli by selecting pictures of facial expressions, thus negating the need for verbal responses. In addition, the test is embedded within a computerised-game format to reduce bias and provide social and emotional distance between the interviewer and the child. Computers are being increasingly integrated into the preschool curriculum (see Freeman & Somerindyke, 2001) and provide an interactive, responsive and fun test medium, appealing to various interests and sensibilities.

This paper describes the development and evaluation of STEP within a sample of preschool children. The development process was undertaken in two parts. Experiment 1 describes the theoretical conception and construction of the STEP scale. Experiment 2 explores the initial psychometric properties of internal consistency reliability and construct validity in a sample of UK preschoolers. An overview of the procedural sequence is provided in Figure 1.

*Figure 1. Procedural Flowchart*

*Experiment 1*

1. Initial Instrument Development

- Determine test blueprint
- Generate potential scale items

2. Establish Content Validity

- Distribute test blueprint and sample items to
  - 4 independent researchers
  - 15 preschool teachers

3. Item Analysis

- Pilot item-vignettes on 20 preschoolers
- Item analysis to select final items

*Experiment 2*

4. Develop the Computerised Measure

- Construct vignettes into dramatised format
- Record narrative using male vocalist
- Design structure of test
- Combine materials into computerised format

5. Piloting

- Pilot initial test on 10 preschoolers

6. Establish Psychometric Properties

- Administer final version to 40 preschoolers
- Establish initial psychometric properties

## Experiment 1

Hoffman's (2000) normative framework of empathic development and age-related findings for children's interpersonal reasoning (Gnepp, 1989; Saarni & Harris, 1989; Saarni, Mumme, & Campos, 1998) were used to select four central types of emotionally evocative vignettes: facial expressions, situational cues, verbal emotional expressions and desire-based cues (see Table 2 and Appendix C). Young children can readily identify and share in others' emotions based on facial expressions and situational contexts that are simple and familiar (Gnepp, 1983; 1989; Hoffner & Badzinski, 1989; Reichenbach & Masters, 1983). By three years of age, children are also able to respond to more complex affective events and to make personalised inferences on the basis of others' verbal emotional expressions and knowledge of their desires (Gnepp, 1989; Harris & Saarni, 1989; Astington, 1993; Wellman, 1990). The four types of vignettes used in STEP do not exhaust the variety of meaningful empathy-evoking events in the preschool period but provide a broader range of stimuli than has previously been used in such research with children.

Experiment 1 aimed to develop the vignettes into a valid test blueprint that explicitly considered the needs and abilities of preschool respondents. The test blueprint and potential scale items were subjected to a stringent series of evaluation procedures (see Rust & Golombok, 2001) involving independent researchers, preschool teachers and a representative sample of preschool children. The goal of the experiment was to determine a series of scale items that provided a range of difficulty and maximised individual differences within the sample.

Table 2

*Brief Description of the Four Types of Stimuli used in STEP*

Empathy Cue	Description
Facial (F)	Child judges and shares in the protagonist's emotion from their dynamic facial expressions
Situational (Si)	Child judges and shares in the protagonist's emotion from the situational cues. The protagonist's face cannot be seen.
Verbal (V)	Child judges and shares in the protagonist's emotion from their verbal comments. The protagonist's face cannot be seen. The protagonist's emotional response is not evident from the situational cues alone.
Desire (D)	Child judges and shares in the protagonist's emotion from the protagonist's desires. The protagonist's face cannot be seen. The protagonist's emotional response is not evident from the situational cues alone. The protagonist's desires are nonverbal and explicit (e.g. pictures in thought bubbles).

*Method**Participants and Recruitment*

Twenty-one preschool children (10 girls, 11 boys) who ranged in age from 48 to 59 months ( $M = 54.3$  months,  $SD = 3.90$  months) participated in Experiment 1. The children were recruited from two mainstream preschools in Dorset and Hampshire, serving a population that was largely Caucasian. All the children spoke English as a first language.

Recruitment involved a multitiered process. First, nursery managers and staff were contacted and informed about the research study. Second, a letter, consent form and information sheet (Appendix E) detailing the nature of the study were provided to each child in the appropriate age range to take home to their parents. Those parents who agreed to their child's participation were asked to complete and return the consent form. Third, verbal assent was sought from

each child immediately prior to his/her participation in the study. Participation rate was 88 percent.

### *Procedure*

Appropriate ethical approval was obtained for this study (Appendix D).

*Initial instrument development.* Using Hoffman's (2000) framework of normative empathic development, four central content areas were determined (facial, situational, verbal and desire), as well as four primary emotional manifestations (happy, sad, fearful, angry). This yielded a corresponding test blueprint containing 16 categories (see Table 3). Three vignettes were allocated to each category producing a 48-vignette pilot instrument. This provided an optimum balance between high reliability and the compliance characteristics of the target population (Rust & Golombok, 2000). All vignettes were generalised from existing measures of affective perspective taking tasks (e.g. Denham, 1986; Dyck, Ferguson, & Shochet, 2001; Gnepp, 1989; Wang, 2003) as well as research on prototypical scripts for emotions (Shaver, et al., 1992; Stein & Jewett, 1986; Stein & Liwag, 1997).

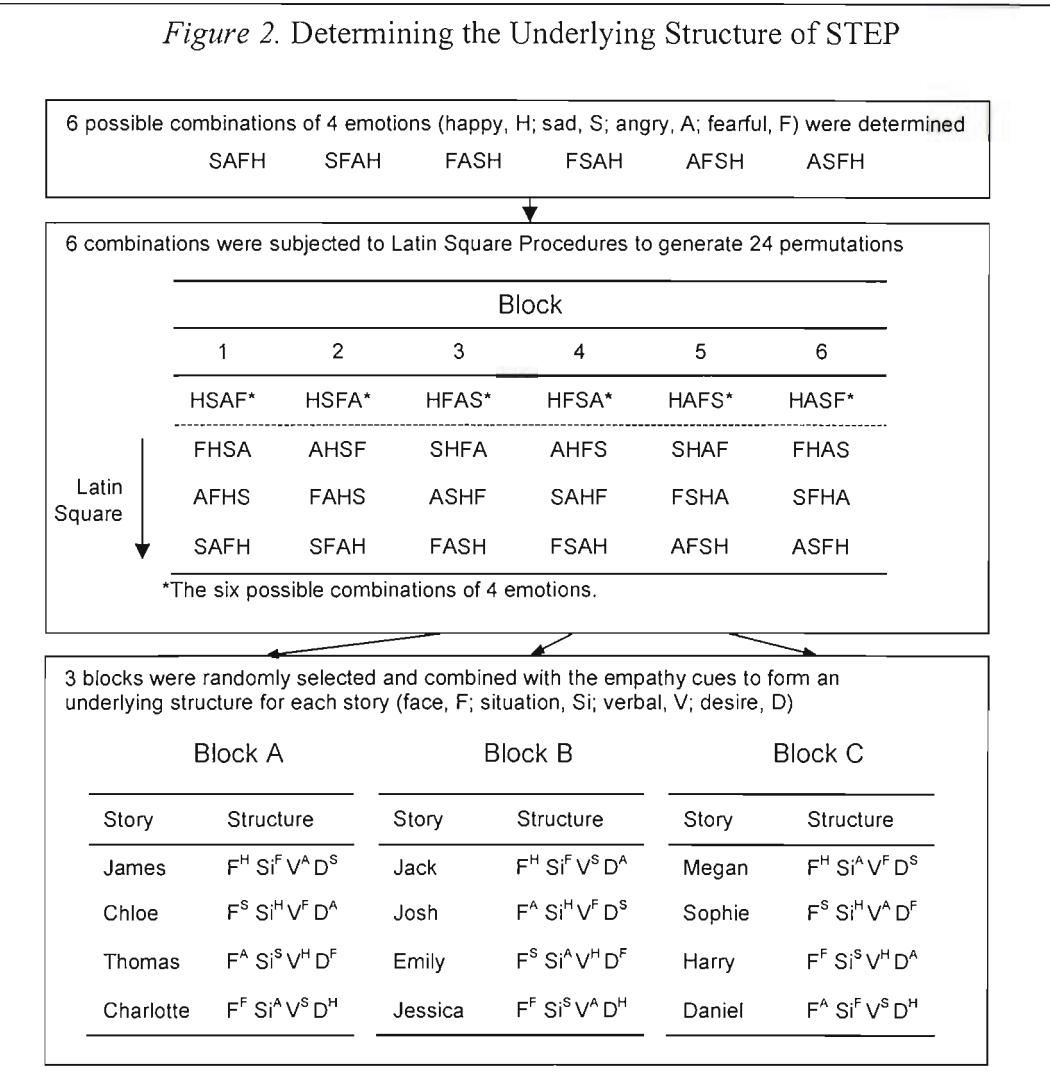
Table 3

*Content Areas and Manifestations of the Pilot Version of STEP*

Manifestations	Empathy Cues (Content Areas)					Total
	Facial	Situational	Verbal	Desire		
Happy	3	3	3	3	3	12
Sad	3	3	3	3	3	12
Angry	3	3	3	3	3	12
Fearful	3	3	3	3	3	12
Total	12	12	12	12	12	48

The vignettes were compiled into 12 methodologically comparable stories about 12 principal characters (e.g. Chloe's playtime). Each story began with a facial vignette (F). The rest of the vignettes were presented in sequence of increasing developmental difficulty (situation, Si; verbal, V; desire, D). This provided a fixed order of empathy cues across stories (i.e. F, Si, V, D). The four emotions were then randomly counterbalanced across empathy cues in each story. This procedure is summarised in Figure 2. First, six blocks containing four emotional sequences were determined in which each emotion was presented in every condition. Three blocks (12 emotion sequences) were then randomly selected and combined with the empathy cues to form the structure for each story.

*Figure 2. Determining the Underlying Structure of STEP*



*Establishing content validity.* The test blueprint and sample items were distributed by electronic mail to four independent developmental researchers with an expertise in empathy, who were invited to provide feedback on the operationalisation of the construct and the various items selected. Based on their responses, a number of revisions were made to the test. For example, photos depicting emotional expressions were substituted for schematic faces neutral in age, gender and ethnicity (Appendix F). These faces depicted the prototypic criteria for Izard's (1995) happy, sad, fearful and angry facial expressions. Empathy was operationalised as an exact verbal affect match between the emotions the children attributed to themselves and to the vignette character.

The stories and schematic faces were also distributed to a panel of 14 preschool teachers at participating nurseries (Appendix G). Each teacher was asked to label the emotion depicted by the schematic face. Agreement among the panel was 100 percent. The teachers were then asked to select the emotion (happy, sad, angry, frightened, neutral) that was (a) the primary affective emotion displayed by the child in the vignette, and (b) the emotion that a child observer would be expected to feel after watching it. Chi-square analyses comparing the number of teachers who selected the expected emotion and those who did not were significant for all categories of responses,  $p < .05$ . Agreement ranged from 79 to 100 percent.

*Item analysis.* The 12 stories were piloted in cartoon format (Appendix H) on the sample of preschoolers. Children were tested in a quiet room in their preschool. Prior to the task, the children were acquainted with the schematic faces and asked to receptively identify the emotional expressions they represented: "Show me the happy face. Show me the sad face (etc.)." No

feedback was provided, to ensure that the children could not identify the faces through a process of elimination. Agreement among the 21 children on the emotions depicted by the faces was also 100 percent.

The children were then taught how to use the schematic faces within the context of the stories: "*I want you to listen carefully to each story. When I'm finished, I'm going to ask you how the child feels. If you think the child is happy, which face would you show me? (Etc.)*" (see Appendix I). The children were then prompted to select a storybook. Each story was accompanied by a narrative, read out by the interviewer. At the end of each section, children were required to identify the character's emotion as well as their own emotional reaction to each vignette using the schematic faces. The interviewer also enquired about the children's reasons for their emotional selection (e.g. "*Why were you sad?*") to determine the age-appropriateness of the story elements and to ensure that the children's empathic responses were not blocked, for example, by their fear of dogs. All the responses were recorded on an answer sheet by the interviewer (Appendix J).

It took approximately 25 minutes to administer the instructions and 12 stories. Gold star stickers were provided between stories to help maximise the children's motivation and engagement in the task. A small gift bag (containing chocolate, stickers and a small toy) and debriefing certificate (Appendix K) were also given to the children at end of the test.

Following the coding system developed in previous studies (e.g., Denham, 1986), children were credited with 2 points if they chose the exact emotion portrayed by the character, 1 point if they identified the correct valence, but chose the wrong emotion (e.g. sad instead of scared) and 0 points if they chose

the incorrect valence for the character. For themselves, 2 points were given if they selected the emotion concordant with the character's emotion and 0 points if they selected an alternative emotion. A composite empathy score (STEP-TOT) was therefore derived from the pilot questionnaire ranging from 0 (no empathy) to 192 (high empathy).

### *Methods of Analysis*

In order to select the best vignette-blocks from the pilot version of the measure, item analysis involved an examination of the facility, discrimination and distracter options for each vignette (Rust & Golombok, 2000).

*Facility.* The item facility index, an indication of the item difficulty, was calculated as the ratio of respondents who gave the right response to the total number of respondents for each item. Ideally, the facility index should lie between 0.25 and 0.75 (Rust & Golombok, 2000). Items with extreme  $p$  values are superfluous, providing less differential information about individual differences (Anastasi & Urbina, 1997). In ideal circumstances, there should be a spread of items with an average difficulty of .50 (Rust & Golombok, 2000).

*Discrimination.* The discrimination index represents the ability of each item to discriminate respondents according to the characteristic being assessed. The score for each vignette was correlated with the total score for the test using Spearman's rank correlation coefficients. A minimum discrimination index of 0.2 is generally required (Rust & Golombok, 2000).

*Distracters.* An examination of the use of distracter options was also carried out for each vignette to identify emotionally ambiguous items. The percentage of endorsement of each emotion was calculated for every vignette. To permit a parsimonious analysis of the data, the scores were collated across

content areas and manifestations, yielding average responses for each empathy cue and emotion.

### *Results*

Pilot STEP scores ranged from 57 to 160 with a mean score of 112.1 (out of 192),  $SD$  24.4 and positive skew .536. The data was normally distributed ( $D$  = .113,  $ns$ ). There was no significant difference in STEP scores between male and female participants ( $U$  = 28.500;  $ns$ ).

Table 4 summarises the results of the item analysis, categorised according to Rust and Golombok's (2000) psychometric criteria (full analysis is provided in Appendix L). There was considerable variability in facility indexes within each block, with average difficulty ratings of .50 (Block A), .53 (Block B) and .46 (Block C). High facility indexes ( $p > .75$ ) were primarily associated with facial vignettes whereas low facility indexes ( $p < .25$ ) were derived from the desire vignettes. The majority of participants correctly identified the emotions depicted in the characters' facial expression. In contrast, only a minority of children selected the correct emotion elicited by the characters' desires. An examination of the children's justifications for their emotional selection showed that they were inclined to endorse an emotion consistent with external cues in the characters' environments (e.g. "*happy... because he got the teddy*") rather than with the characters' internal cues (e.g. "*sad... because he wanted his blankie*").

Compared with Blocks A and B, Block C contained the greatest number of vignettes with extreme  $p$  values (21/32). Participants found these vignettes more difficult. Block C also contained the greatest number of redundant items (6/32), in which the participants were either all correct or incorrect.

Table 4

*Facility Index and Discrimination Index of the 32 Items (16 Vignettes) within each Block Categorised According to Rust and Golombok's (2000) Criteria*

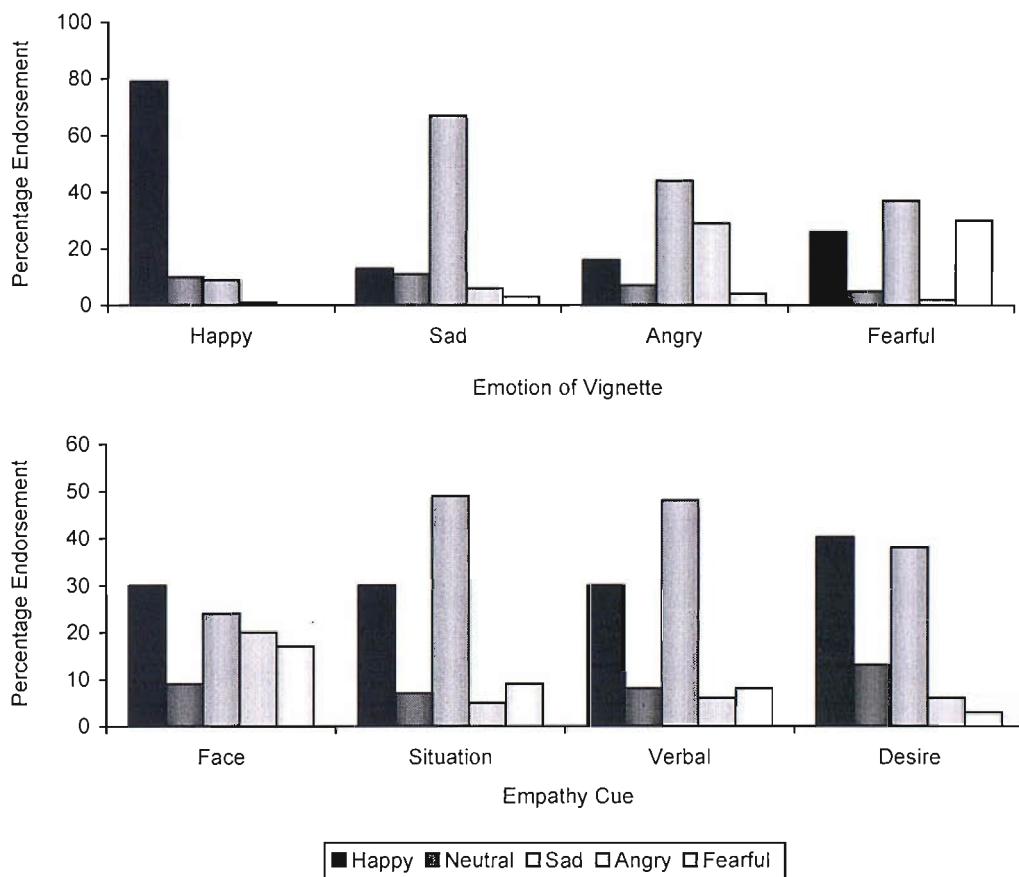
Item Analysis	Block A	Block B	Block C
<b>Facility Index</b>			
$p < .25$	6	7	11
$.25 < p < .75$	16	15	11
$p > .75$	10	10	10
<b>Discrimination Index</b>			
$p < .20$	14	10	16
$p > .20$	18	22	16

Discriminator values ranged from -.37 (Block B, character, desire cue, sad) to .85 (Block B, observer, facial cue, angry). The lowest correlations were associated with the affective-perspective taking component of the test, which required the children to identify the emotion of the stimulus character. In contrast, significant correlations were associated with the emotional sharing tasks, in which children were asked to report their emotional response to the stimulus vignette. As shown in Table 4, Block C contained the largest number of discriminator indexes falling below the recommended threshold (16/32), compared with Blocks A (14/32) and B (10/32).

Data from the distracter analysis is summarised in Figure 3. Full data is available in Appendix M. Children were most likely to correctly identify the emotion portrayed in the happy (79%) and sad (67%) vignettes and least likely to identify the emotion depicted in the angry (29%) and fearful (30%) vignettes. Sad was the most frequent emotion selected in preference of the correct emotion

for the angry and fearful vignettes. In contrast, the OK/neutral option was the most frequent distracter option for the happy vignettes. This pattern of emotional responses was consistent across blocks.

*Figure 3. Percentage Endorsement of Each Emotional Response Categorised According to the Emotion Portrayed in the Stimulus Vignette and the Type of Stimulus Vignette*



### *Discussion*

The results of Experiment 1 showed that the pilot instrument produced a good spread of scores and that both floor and ceiling effects were not evident. The children's responses on the test were largely determined by the characters' facial expressions or external events, rather than on the characters' inner subjective perspectives. This pattern is consistent with Hoffman's (2000)

developmental model of empathic arousal and age-related findings for children's interpersonal reasoning (Gnepp, 1989; Saarni, & Harris, 1989; Saarni et al., 1998).

The developmental progression in empathy upon which STEP was based, created problems for item analysis. According to Rust and Golombok's (2000) criteria, the facial vignettes were generally categorised as too easy and desire vignettes as too difficult. Ordinarily, this would have precluded their inclusion within a psychometric measure. However, one goal of Experiment 1 was to assemble a set of tasks that were easier or harder because of the conceptual differences among them. Responses to the facial and desire vignettes provide important information about typical empathic development, which might be informative in future studies with atypical populations.

Empathic arousal also appeared to differ as a function of the four main emotions examined. Of the total empathic responses given, empathy was most prevalent for happiness (79%) and sadness (67%), and least prevalent for anger (28%) and fear (30%). The relative distribution of responses shows some accord with naturalistic studies of preschooler's behaviours in response to others' emotions in a natural context (Denham, 1986; Strayer, 1980). As such studies suggest, it may be more immediately rewarding to share in others' happy experiences, so that empathy to this emotion may be expected to be at higher levels than to dysphoric emotions. Yet "feeling into" others' dysphoria is what is most commonly referenced in ordinary usage of the term empathy and is what is hypothesised to motivate prosocial and moral acts (e.g., Hoffman, 2000).

Results obtained in studies with school-aged children suggest that empathy with negative emotions relates differently to prosocial and aggressive behaviours

than empathy with positive emotions, at least for boys (e.g., Eisenberg et al., 2001; Feshbach, 1982). Feshbach (1982) demonstrated that boys who empathised strongly in dysphoric situations (i.e. sadness, fear and anger) were rated by their teachers and peers as low aggressive, and were more likely to show helping behaviour. In contrast, boys who emphasised strongly with euphoric situations (i.e. happiness) were rated by their teachers and peers as antisocial and aggressive (Feshbach, 1982). STEP provides a tool to explore empathic responding to specific emotions in preschool populations.

Interestingly, sad was selected in preference of the correct emotion on the angry and fearful vignettes. Other researchers report a similar pattern in preschoolers' identification of happy, sad, angry, and fearful stimuli (e.g., Denham & Couchard, 1990). Bullock and Russell (1984; 1985; 1986) provide a useful developmental framework for interpreting these findings. They suggest that young children initially learn to differentiate "happy" from "not happy" or "sad". Happy and sad emotional stimuli are therefore easier for young children to understand, yielding incorrect responses such as "sad" or "don't know" for other negative emotions (Denham & Couchard, 1990; Fabes et al., 1991). An understanding of anger and fear emerges later from the not happy/sad category (Bullock & Russell, 1984; 1985; 1986). Including angry and fearful vignettes within STEP provides an opportunity to track children's emotional understanding in normative and clinical populations. For instance, it is suggested that children who have been physically abused more readily identify angry than sad stimuli (Pears & Fisher, 2004; Pollak, Cicchetti, Hornung, & Reed, 2000).

Based upon item analysis, Block C was eliminated from the final version of the measure. Compared with Blocks A and B, Block C contained the greatest number of redundant items, providing less differential information about individual differences. The final version of the test therefore contained 32 vignettes.

## Experiment 2

The aim of Experiment 2 was to construct the items into video vignettes, embedded within a computer game, and to explore the initial psychometric properties of reliability and validity in a sample of UK preschoolers. Effective measures of empathic ability should yield reliable scores that are related in valid ways to independent standards of empathy (APA, 1985; Nickel & Squires, 2000; Salvia & Ysseldyke, 1998). It was hypothesised that the instrument would produce variables of approximately equivalent internal consistency. In addition, there would be a positive relationship between empathy scores determined from the computerised task and a facial index of empathy-related responding (Maximally Discriminative Facial Movement Coding System; Izard, 1995), and parent-rated dispositional empathy traits (My Child; Kochanska, De Vet, Goldman, Murray, & Putnam, 1994).

Psychometric measures of empathy are also required to have concurrent validity, clarifying their relationships to other constructs of social and emotional development (Nickel & Squires, 2000; Salvia & Ysseldyke, 1998). It was hypothesised that composite empathy scores would be positively correlated with teacher reports of prosocial behaviour (Strength and Difficulties Questionnaire, SDQ; Goodman, 1997) and inversely correlated with teacher-rated peer

problems and aggressive behaviour (SDQ; Goodman, 1997) (see Eisenberg et al., 1996; Hughes & Dunn, 2000; Roberts & Strayer, 1996).

### *Method*

#### *Participants*

Forty-nine preschool children (24 girls, 25 boys) were recruited from six mainstream nursery schools across Dorset and Hampshire. Children ranged in age from 40 to 53 months at the time of data collection ( $M = 47.0$  months;  $SD = 3.9$  months). The sample was predominantly Caucasian, with a small proportion from Afro-Caribbean ( $n = 1$ ), Asian ( $n = 1$ ) and European ( $n = 2$ ) origin. All spoke English as a first language.

Fifty percent of the children approached were involved in the study: Thirty-five percent of parents did not return the consent forms to the nursery; four percent ( $n = 8$ ) of children did not assent to the project; 10 percent ( $n = 18$ ) were absent on testing days; and one percent ( $n = 2$ ) moved out of the area. There were no significant differences in parent-reported dispositional empathy between the children who did and did not participate in the study ( $\chi^2 (3, N = 77) = 4.7$ ; *ns*).

#### *Materials*

In order to explore the psychometric properties of STEP, the following tests were also administered. The tests were selected to provide multiple sources of information from a range of informants.

*Facial Indices of Empathy-Related Responding.* The Maximally Discriminative Facial Movement Coding System (MAX; Izard, 1995) provides a method for assigning facial expressions to emotional categories in infants and children. Facial-expressive empathy can be determined from the number of

exact matches between the predominant facially expressed emotion of the child participant and the character for each vignette. The facial index was scored as: 2, an exact match between the child's facial expression and the character's emotion; 1, a similar valence between the child's facial expression and the character's emotion; and 0, no emotion or a discordant emotion facially expressed by the child (Chisholm & Strayer, 1995). Scores were totalled across all the vignettes for each participant to provide an index of empathy-related responding. Similar nonverbal measures have been used in previous research to index empathy (e.g., Chisholm & Strayer, 1995; Eisenberg et al., 1988; 1994; Gill & Calkins, 2003; Strayer & Roberts, 2004).

*Parent-Reported Dispositional Empathy Traits. My Child* (Kochanska et al., 1994) provides a 100-item parent-report measure of behaviour in children aged 21-70 months. The empathy subscale incorporates 13 items assessing a general disposition of emotional responsiveness to affective events, such as "can tell at a glance how others are feelings" and "is upset by stories in which the character is hurt or dies," which the parent scores on a scale from 1 (extremely untrue) to 7 (extremely true). Good internal consistency ( $\alpha = 0.76$ ) and split-half reliability ( $r = 0.79$ ) are reported. Validity has been determined within the context of the overall measure (Kochanska et al., 1994).

*Prosocial behaviour, conduct and peer problems.* The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is an established brief behavioural screening questionnaire for 3 to 16 year olds. The 25 items are divided between 5 scales of 5 items each, generalizing scores for conduct problems, hyperactivity, emotional symptoms, peer problems, and prosocial

behaviour. The psychometric properties of the SDQ are reported to be satisfactory (Goodman, 2001).

*Verbal and Nonverbal IQ.* The Wechsler Preschool and Primary Scale of Intelligence – Third UK Edition (WPPSI-III<sup>UK</sup>; Wechsler & Rust, 2004) is a cognitive ability measure designed for children aged two to seven years. The tests have acceptable split-half and test-retest reliability and are validated in the context of assessing the validity of the Wechsler battery (Wechsler & Rust, 2004). The assessment battery yields estimations of the child's Full-Scale IQ, Verbal IQ and Performance IQ. Supplement tests were also administered to provide a measure of the child's General Language Ability.

#### *Procedure*

*Developing the computerised measure.* 18 child actors (8 girls, 10 boys) ranging in age from five to nine years and three adults were recruited from local drama groups to take part in the video vignettes (see Appendix E for letter, consent form and information sheet). Prior to filming, the researcher met individually with each child and their parents to discuss the project, confidentiality and the potential uses of the instrument. An opportunity was provided to ask questions before written consent was sought from both the parents and the child. The adult actors' participation in the vignettes was taken to imply their consent to the project. A debriefing certificate (Appendix K) and gift token were provided to the actors once filming was complete.

Filming took place at various locations across the city (e.g., primary school, playground, park) using a professional camera crew. Each story was edited into a seven-segment video vignette approximately 120 seconds in

duration and accompanied by a 85-90 word narrative. The narrative, instructions and questions were provided by a professional male vocalist.

The video vignettes (avi files), audio clips (wav files) and graphics (bitmap file) were constructed into a computerised format using Borland C++ Builder 5. The “faces” game played first, requiring the children to receptively identify the schematic faces from a visual array. The order of identification was automatically randomised for each child. If a mistake was made, the child was provided with a teaching session (“*This is the happy face. This is the sad face. [Etc.]*”) and then asked to re-identify the faces. If the child unsuccessfully identified the faces on three occasions, the test was aborted. The respondent then practiced selecting each emotion from its fixed position at the bottom of the screen until he or she became familiar with the test layout.

The “story” game began with a pilot story selected from Block C to teach the child about cartoon thought bubbles as a device for representing the characters’ desires (Wellman, Hollander, & Schult, 1996). The story menu then appeared featuring eight characters waving at the respondent. The child was prompted to click on a character of their choice in order to hear the story. This character was automatically disabled from further selection. Once the story was complete, the child was provided with a sticker before the test returned to the menu screen, where another story character was selected. This cycle repeated until the child had completed all eight stories and a good-bye screen was presented.

The programme automatically summed the children’s responses, providing a composite empathy score (STEP-TOT) ranging from 0 to 128. Two subscale scores were also determined, representing the children’s ability to correctly

identify the protagonists' emotions (STEP-UND) and their tendency to share in these emotional experiences (STEP-SHA). Each subscale ranged from 0 to 64. Specific responses to each vignette were automatically stored by the programme and could be accessed for analysis if required.

The stimulus stories were modified to include two check items. The first, the attention check (C), required the children to answer a simple question relating to a filler vignette (e.g., "*What is Chloe reading? A comic or a book?*"). This enabled an assessment of the respondents' memory and comprehension, independent of their responses to the stimulus vignettes. This filler vignette was presented between the situation and verbal cue (i.e. F, S, C, V, D) to interrupt the continuous repetition of feeling questions. Four types of filler items, controlling for the four types of empathy cues, were randomly allocated across stories.

The second non-emotional item, the desire check, determined the child's ability to adopt the character's perspective. The child was asked what the character wanted based on information provided in the thought bubble (e.g. "*What does Chloe want? The comic or the ball?*"). This was followed by the desire vignette.

*Piloting.* The draft computerised measure was piloted on ten preschool children (6 girls, 4 boys) aged between 46 and 52 months (mean age = 48.9 months;  $SD = 1.97$  months) at their nursery school to ensure that the respondents understood the instructions and that it could be completed and scored with ease (see Appendix E for parent letter, consent form and information sheet). The test was administered on a Toshiba Satellite Pro A10 laptop using a KidzMouse BenjieBee Optical Mouse specifically designed for use with preschool children. Throughout, the researcher sat behind the child facing the computer screen. The

researcher redirected the child to the screen if the child turned away. Several discrepancies with item scoring were identified and revised in the pilot. Additional refinements were also made to the programme to control children who were over-enthusiastic in their use of the mouse.

*Establishing psychometric properties.* Following standard consent procedures (see Appendix E), the revised computerised measure and WPPSI-III were administered to a sample of 39 preschoolers (18 girls, 21 boys) aged 40 to 53 months (mean age = 46.56 months;  $SD = 4.16$  months). Each child participated in one 60-minute testing session conducted within a quiet area of the nursery. The order of administration of the tests was counterbalanced across participants with a refreshment break provided mid-session. To reduce test anxiety, the researcher spent several days in each nursery prior to the administration of the tests.

All the participants were unobtrusively recorded whilst they completed STEP, using a small digital camera (Panasonic NV-GS50B) mounted on top of the computer screen. Recordings from 20 children who achieved either the highest or the lowest scores on STEP were subsequently coded by an independent researcher trained to reliability in MAX (Izard, 1995). A one-minute baseline tape for each participant was viewed initially to familiarise the coder with idiosyncratic facial characteristics. The coder then judged the child's predominant facial expression in the 32 stimulus vignettes. The coder was blind to the emotional stimuli that the child was viewing.

Following their participation in the study, the children received a small gift and debriefing certificate. Teachers were then asked to complete the SDQ. The SDQ and parent-rated dispositional empathy questionnaire (returned with the

consent form) were scored once all data was collected to ensure that each child was tested blind.

### *Methods of Analysis*

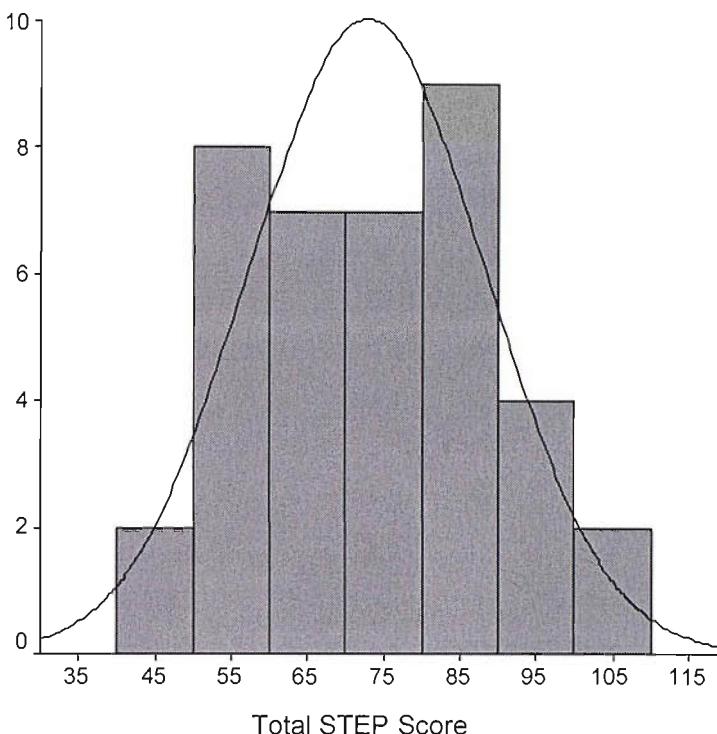
Statistical analysis was performed using the SPSS package (SPSS U.K. Ltd, Woking). Data were screened using a variety of techniques (e.g. examination of histograms, boxplots, and calculation of skewness, kurtosis, and Kolmogorov-Smirnov statistic) to determine the presence of outliers and to assess the assumptions of normality. Behavioural data obtained from the SDQ were not normally distributed. Where possible, non-parametric statistical analyses were therefore employed. The internal consistency reliability of the measure was assessed by calculating Chronbach's alpha. Spearman's rank coefficient of correlation was used to explore the concurrent, convergent and divergent validity of the test, except where partial correlation was required when, owing to a lack of a nonparametric alternative, Pearson's correlation coefficient was used.

### *Results*

*Exploration of the data.* STEP has a minimum possible score of 0 (not empathic) and a maximum score of 128 (highly empathic). STEP scores ranged from 46 to 101 with a mean of 72.8, *SD* 15.5 and skewness .067. Figure 4 displays the distribution of STEP scores within the sample. The data was normally distributed without outliers ( $D = .687, ns$ ).

Of the 2,496 possible responses (39 participants by 64 items), only 147 (5.9%) were marked as OK/neutral. Children were most likely to correctly identify the emotion portrayed in the facial (52%), situational (51%) and verbal

Figure 4. Distribution of STEP Scores within the Sample



vignettes (50%), and least likely to identify the emotion depicted in the desire (39%) vignettes. The euphoric emotion happy was also correctly identified more frequently than the dysphoric emotions of sad (48%), angry (42%) and frightened (27%).

As shown in Table 5, there were no significant differences in STEP scores between boys and girls (STEP-TOT,  $z = -.381$ ; STEP-UND,  $z = -.932$ ; STEP-SHA,  $z = -.085$ ;  $ns$ ). However, male participants were significantly older and were assessed as having greater peer problems compared with their female counterparts (age  $z = -2.17$ ,  $p < .05$ ; peer problems  $z = -2.11$ ,  $p < .05$ ). The latter did not achieve clinical significance. Gender was therefore not considered further.

Table 5

*Gender Differences in Scales and Scores*

	Boys		Girls		<i>z</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age (months)	47.9	4.0	45.0	3.9	-2.169*
STEP					
Total Score (0-132)	72.0	14.0	73.7	17.4	-.381
Emotional Sharing (0-64)	42.6	6.1	44.2	7.9	-.932
Emotional Understanding (0-64)	29.4	9.7	30.1	12.4	-.085
My Child Parent Rated Empathy (0-7)	5.1	.6	5.3	.5	-.794
Facial Empathy Scores	5.3	6.5	9.7	12.1	-.507
SDQ					
Prosocial Behaviour (0-10)	7.2	2.0	8.1	1.4	-1.177
Emotional Problems (0-10)	1.2	1.3	1.3	1.0	-.090
Conduct Problems (0-10)	.6	.71	.5	1.2	-1.481
Hyperactivity (0-10)	3.4	2.7	2.7	1.6	-.748
Peer Relationship Problems (0-10)	1.4	1.5	.4	.7	-2.114*
Total Difficulties (0-40)	6.5	3.3	4.8	3.5	-1.680
WPPSI-III <sup>UK</sup>					
Full Scale IQ	104.7	10.9	107.5	10.0	-.714
Performance IQ	103.5	13.2	106.2	11.9	-.477
Verbal IQ	105.0	11.4	106.0	10.6	-.762
General Language Ability	105.8	10.0	104.9	11.8	-.143

\*  $p < .05$ 

STEP scores were significantly association with age ( $r_s = .32, p < .05$ ) but not with Verbal IQ ( $r = -.02, ns$ ) or General Language Ability ( $r_s = .05; ns$ ). A more detailed correlation analysis yielded significant correlations between age and summed scores obtained on the situational ( $r_s = .40, p < .02$ ) and verbal vignettes ( $r_s = .36, p < .05$ ), but not on the facial ( $r_s = .07, ns$ ) or desire ( $r_s = .17, ns$ ) vignettes. Older children were more likely to identify the correct emotion from situation and verbal cues, contributing to higher scores on the total scale.

*Reliability analysis.* Table 6 contains Chronbach's alpha scores for the total scale (STEP-TOT) and for each major subscale (STEP-UND; STEP-SHA). The internal consistency of the scales was uniformly high, ranging from .70 to .85. This could not be improved by item deletion.

**Table 6**

*Internal Consistency of STEP and its Subscales*

Scale	Cronbach's alpha
Total STEP Score (STEP-TOTAL)	.85
Emotional Understanding Subscale (STEP-UND)	.70
Emotional Sharing Subscale (STEP-SHA)	.82

*Validity analysis.* Each scale was entered into a correlation analysis, summarised in Table 7. The results of the analysis can be catalogued as follows. First, as expected, STEP-TOT and STEP-UND were significantly correlated with parent reports of dispositional empathy (STEP-TOT,  $r_s = .35$ ; STEP-UND,  $r_s = .40$ ;  $p < .05$ ). Children who were rated by their parents as empathically responsive to the emotions and needs of others were also more accurate in their identification of the protagonists' emotions. Second, a modest but non-significant correlation was determined between STEP scores and facial empathy ( $r_s = .31$ ,  $ns$ ). Third, positive and significant associations were established between teacher-rated prosocial behaviour and the three STEP scales (STEP-TOT  $r_s = .75$ ; STEP-UND  $r_s = .71$ ; STEP-SHA  $r_s = .65$ ;  $p < 0.01$ ). This relationship was maintained, after controlling for age (STEP-TOT  $r = .74$ ,  $p < 0.01$ ; STEP-UND  $r = .69$ ,  $p < 0.01$ ). Finally, there was a lack of association between STEP scores and peer problems. However, there was a significant inverse relationship between STEP-UND and teacher-rated conduct problems ( $r_s = -.51$ ,  $p < .01$ ).

Table 7

*Intercorrelations among Southampton Test of Empathy in Preschoolers (STEP) Scales, Teacher-Rated Strength and Difficulties Questionnaire (SDQ) Scales, Parent-Rated Empathy (My Child), Facial Empathy, Wechsler Intelligence Scales and Age (N = 39)*

	Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	STEP-TOTAL	-															
2.	STEP-UND Subscale	.83**	-														
3.	STEP-SHA Subscale	.92**	.58**	-													
4.	My Child Parent Rated Empathy	.35*	.40*	.20	-												
5.	MAX Rated Facial Empathy <sup>a</sup>	.31	.40	.36	.37	-											
6.	SDQ Teacher Rated Prosocial Behaviour	.75**	.71**	.65**	.20	.14	-										
7.	SDQ Teacher Rated Emotional Problems	.15	-.06	.20	-.06	.07	.19	-									
8.	SDQ Teacher Rated Conduct Problems	-.29	-.51**	-.07	-.33	-.48	-.38*	.04	-								
9.	SDQ Teacher Rated Hyperactivity	-.29	-.40*	-.15	-.27	-.41	-.39*	.11	.61**	-							
10.	SDQ Teacher Rated Peer Relationship Problems	.17	.07	.19	.09	.33	.06	.23	-.07	-.22	-						
11.	SDQ Teacher Rated Total Difficulties	-.15	-.39*	.01	-.25	-.21	-.26	.59**	.60**	.74**	.29	-					
12.	WPPSI-III Full Scale IQ	.05	-.07	.07	-.03	.24	-.14	-.12	.10	.11	-.03	-.10	-				
13.	WPPSI-III Performance IQ	.15	.05	.17	-.15	.14	-.05	-.15	.12	-.08	-.03	-.07	.84**	-			
14.	WPPSI-III Verbal IQ	-.02	-.12	.00	.13	.30	-.16	.03	.02	-.15	-.03	-.09	.71**	.27	-		
15.	WPPSI-III General Language Ability	.05	-.02	.08	.23	.43	-.10	-.02	.01	-.22	.22	-.06	.53**	.18	.79**	-	
16.	Age	.32*	.39*	.22	.09	-.11	.19	-.18	-.06	.11	.05	-.04	-.36*	-.24	-.32	-.22	-

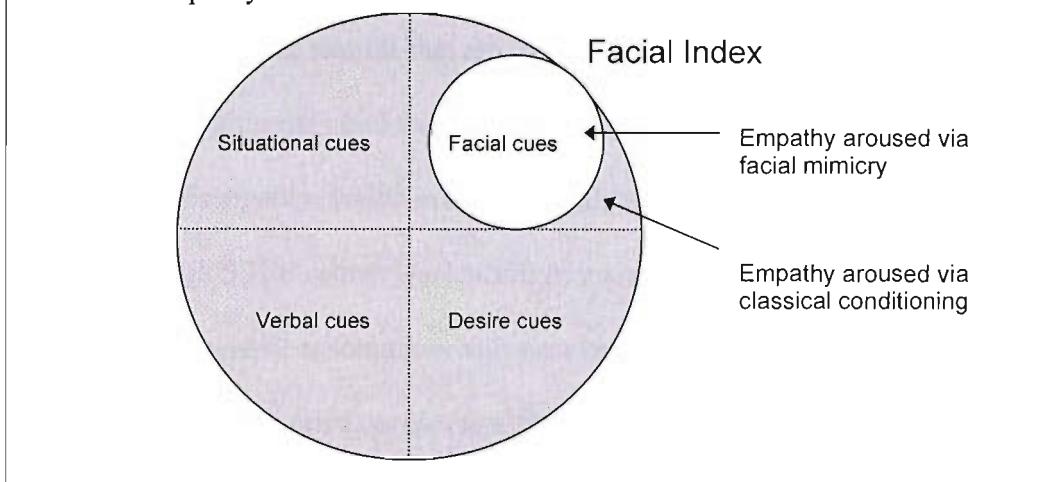
\* p < .05, \*\* p < .01, <sup>a</sup> N = 20

### *Discussion*

The aim of Experiment 2 was to construct and evaluate a new instrument to measure empathy in preschool populations. Initial analyses showed that the instrument produced a normal distribution of scores and that neither floor nor ceiling effects were evident. The pattern of responses across the four types of empathy cues was, once again, consistent with the theoretical foundation of the scale (Hoffman, 2000). The internal consistency reliability of STEP was also satisfactory according to published guidelines for psychometric tools (APA, 1985; Nickel & Squires, 2000; Salvia & Ysseldyke, 1998). Finally, as predicted, STEP scores evidenced good concurrent validity against an independent parent report measure of dispositional empathy.

STEP was also compared against a facial index of empathy-related responding, although the two measures did not converge. Similar results have been obtained across a range of studies prompting researchers to conclude that facial and self-report empathy represent different aspects of a complex unified process (e.g., Chisholm, 1991; Chisholm & Strayer, 1995; Lewis & Michalson, 1983; Strayer & Roberts, 1997). Empathy assessed on facial indices is limited to a single affective dimension based upon the individual's ability to mimic others' facial expressions of emotions (Hoffman, 2000). In contrast, STEP attempts to elicit empathy through facial mimicry as well as four other cognitive-affective modes. STEP therefore shows modest conceptual overlap with facial indices (Figure 5). When children's facial expressions and STEP scores were correlated for facial vignettes only, a significant association was determined ( $r_s = .50$ ;  $p < .03$ ). This finding supports the validity of facial vignettes on STEP.

Figure 5. Hypothesised Conceptual Overlap between STEP and a Facial Index of Empathy



The present study also included a preliminary analysis of the convergent and divergent validity of STEP, comparing children's scores to teacher ratings of prosocial behaviour, peer problems and aggressive behaviour. As predicted, children who evidenced higher levels of empathic arousal on STEP were more likely to engage in positive interactions with their peers, providing further evidence for the convergent validity of STEP. This finding is supported by a wealth of literature on the relationship between empathy and prosocial behaviour (e.g., Hoffman, 2000; Eisenberg, 2000; Roberts & Strayer, 1996), as well as findings from empirical investigations with school-age children (e.g., Eisenberg et al., 1996; Roberts & Strayer, 1996; Strayer & Roberts, 2004). However, previous studies examining empathy and prosocial behaviour in preschool children have yielded mixed results (e.g., Bazar, 1977; Hastings et al., 2000; Lennon et al., 1985). Eisenberg and colleagues (Eisenberg, 2000; Zhou et al., 2003) have attributed these results to theoretical and methodological flaws in the assessment tools used, suggesting that, for example, the strict operational focus and cognitive demands of the tests underestimate empathic ability in this age

group (Denham, 1986; Lennon, et al., 1983). STEP builds upon previous instruments, broadening the conceptual focus of empathy, minimising cognitive demands and utilising stimuli that are interesting and appealing to young children. Engaging the child in this way may provide a more accurate assessment of empathy, which correlates with prosocial behaviour.

Although STEP scores were positively associated with prosocial behaviour, an inverse association with peer problems was not obtained. Furthermore, the affective perspective-taking subscale (STEP-UND) was the only scale that inversely correlated with conduct problems. Children who incorrectly judged the emotion of the characters in the vignettes were rated by their teachers as experiencing greater behavioural problems. This association is consistent with previous research suggesting that children who exhibit disruptive behaviour show a delayed or deviant understanding of mind and emotion (Dodge, 1980; Happé & Frith, 1996; Hughes & Dunn, 2000; Hughes, Dunn, & White, 1998).

The absence of a significant relationship between total STEP scores and aggressive/conduct problems may have occurred for a number of reasons. One possibility is that the present sample was “too typical.” On the teacher-rated SDQ, 37 children fell within the normal range (0-3) and two within the borderline range (4) for peer problems and conduct disorder. Researchers have found associations between emotion knowledge and externalising behaviour more often in clinical samples, with children who score high on measures of aggression and peer aggression (Casey & Schlosser, 1994; Speltz, DeKlyen, Calderon, Greenberg, & Fisher, 1999; Underwood, Coie, & Herbsman, 1992). Alternatively, the sample used in the present study may have been “too young.”

Other research suggests that a negative correlation between empathy and peer problems and aggression does not occur until later in development, around six years of age (Gill & Calkins, 2003; Hastings et al., 2000; MacQuiddy, Maise, & Hamilton, 1987; Zahn-Waxler et al., 1995), and becomes more pronounced with age (Dekovic & Gerris, 1994). These findings highlight the cumulative nature of empathic development and peer acceptance and rejection. Preschool children whose early empathic development is deviant or delayed are more likely to be rejected by their peers (e.g., Strayer, 1993). Consequently, they are unable to gain access to a peer context that would allow them to develop the very social-emotional skills necessary to increase their peer acceptance (Badenes, Estevan, & Bacete, 2000; Deater-Deckard, Dodge, Bates & Pettit, 1998). It would be interesting to explore, in a longitudinal study, the relationship between STEP scores obtained in the preschool period and ratings of aggression and peer problems at six years of age.

There are a number of other interesting observations that can be drawn from the data. Firstly empathic arousal appears to increase with age but not with verbal ability during the preschool period. Specifically, older children were more adept at recognising the characters' emotions from their situational context and verbal expressions of affect. Hoffman (2000) suggests that, as children experience an increasing range of emotions and social episodes, they become better able to differentiate emotional cues and to understand others' emotions. Such increasing familiarity with age should lower the threshold for both recognition and responsiveness to emotions in others. The preschool period also marks the beginning of many changes in mental state understanding (Wellman, Cross, & Watson, 2001). A child's sense of self becomes better defined

(DesRosiers & Burch-Rossnagel, 1997) and he/she becomes increasingly adept at using perspective-taking to infer another's emotional reaction (Wellman et al., 2000). Such advances in a child's cognitive development and social experiences would enable him/her to more readily understand and share in another's emotions based on situational cues and verbal expressions. Of note, studies that have conceptualised empathy as a dispositional trait have not found significant associations with age (Bryant, 1982). This finding is particularly positive for STEP and suggests that the instrument may be sensitive to changes over time.

Secondly, STEP scores did not yield any significant differences between male and female participants. However, previous research indicates modest but consistent gender differences in self-appraised empathy (review by Eisenberg & Fabes, 1998) and perspective-taking skills (Happé, 1995), usually favouring girls. Strayer (1993) states that girls may be more empathic than boys only in the sense of being more ready to recognise and accept empathy-related feelings. Socialisation practices tend to encourage or permit more self-reported emotions in girls than in boys (Eisenberg & Lennon, 1983; Eisenberg & Fabes, 1998). Because STEP is a computerized test, it may be less affected than interview-based instruments by social desirability and gender role expectations.

### General Discussion

The aim of the present study was to design an instrument that improved upon the methodological and theoretical limitations of previous research methods (Denham, 1986; Lennon et al., 1988; Zhou et al., 2003). Findings from Experiments 1 and 2 provide support for STEP as a reliable and valid measure of empathy in preschool children. The tool yielded normally distributed data and the pattern of children's responses across empathy cues and emotions was

theoretically meaningful (Bullock & Russell, 1984; Hoffman, 2000; Strayer, 1993). Previous research with preschool children has not captured this developmental sequence within one instrument (e.g., Feshbach & Roe, 1968). The measure was also judged to have content validity by four independent researchers and produced good internal consistency reliability, concurrent validity and convergent validity against independent measures of empathy and prosocial behaviour.

The small sample size and homogeneity of the sample characteristics limits the generalisation of these findings. For example, STEP was only evaluated within a typical sample of English children. It is therefore unclear whether the tool can be generalised for use in other cultures. This reflects a more general lack of understanding of the development of empathy in other cultures (see Baron-Cohen, 2004), although the little cross-cultural evidence that exists suggests a similar picture in very different cultures (Avis & Harris, 1991). Further studies are required to establish construct validity, to determine the specificity (i.e., children who appear to be developing without problems) and sensitivity (i.e., children who are in need of further social/emotional evaluation) of the instrument, and to standardise STEP within much larger sample groups, at least 100 preschool participants stratified by gender and cultural dimensions (APA, 1985). If STEP proves to be successful within the cultural group that it has been developed, then further attempts to develop the instrument within wider cultural groups may provide a promising focus of future research programmes.

### *Limitations*

The present approach to studying empathy also has a number of drawbacks. First, STEP assesses situational empathy, a transient affective

reaction elicited in concrete situations. STEP scores may therefore vary as a function of the child's emotional state. For instance, high emotional arousal may cloud the child's ability to engage in the protagonists' affective events. Using a relaxing aquatic video prior to the completion of the task may help minimise the effects of emotional state on test responses (e.g., de Weid, Goudena, & Matthys, 2004).

Second, STEP respondents are 'passive' observers rather than 'active' participants of the protagonists' emotional experiences. However, in real-life settings personal encounters may, for example, evoke anxiety or competitive behaviour, which inhibits empathic responding (Eisenberg, 2000). It is therefore necessary to validate the test against other 'live' measures of empathy.

Finally, the reliability of STEP is dependent upon the children's ability to decipher and accurately communicate their emotional states. Attempts were made to enhance the accuracy of children's self-reported emotions by including video stimuli, a picture scale for responses and limiting social bias. Initial findings suggest that this approach may have had some success. For example, children's scores on STEP were not associated with their Verbal IQ or General Language Ability. However, this limitation remains an important consideration for future research, particularly with atypical samples.

### *Future Applications*

A multidimensional measure of empathy in early childhood has several research and clinical implications. From the standpoint of research potential, a tool that measures normative empathic development in early childhood may be usefully employed in empirical research with clinical populations such as children with autism, who are significantly impaired in their ability to empathise

with others (Baron-Cohen, 2002). Research findings suggest that children with autism spectrum conditions demonstrate a pattern of intact abilities as well as impairments in early-emerging empathy skills (e.g., Bacon et al., 1998; Charman et al., 1997; Sigman et al., 1992). An empathy scale, such as present one, could be used to explore whether or not children with autism exhibit the normally developing progression of empathic arousal.

Clinically, STEP provides a backdrop against which early childhood staffing teams can assess a given child's emotional understanding and behaviour. As a strength-based rather than a deficit-based assessment tool, the instrument gives a starting point for the implementation of timely, developmentally sensitive interventions, which can build upon the child's competencies (Perez, Peifer & Newman, 2002). Strengthening a young child's empathic capacity before they enter the school environment may serve as a protective function for their peer relationships and academic success (Izard et al., 2002; Webster-Stratton & Reid, 2004).

Finally, the instrument also has the potential to be developed into an early educational tool used collaboratively by preschool children. For instance, pairing prosocial children with children who exhibit behavioural or peer problems within the preschool setting may facilitate emotional understanding in the latter. This provides an exciting area of investigation for future research programmes.

### *Conclusion*

The present study constitutes an important first step towards the development of a psychometrically sound assessment tool to measure individual differences in empathy in preschool children. STEP provides a new and

comprehensive means of studying the development of empathy that is suitable for use with young children. Further studies are required to establish the validity of the test within larger typical and atypical preschool populations. Once established, the test may be used alongside existing tools to help shape and modify hypotheses of association between early empathic development and later social-emotional competence. Such prevention research may in turn lead to new and more refined intervention techniques that facilitate the development of socioemotional competence and reduce the risk for abnormal empathic development.

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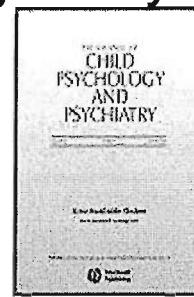
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## Author Guidelines

### Notes for Contributors

Contributions from any discipline that further knowledge of the mental life and behaviour of children are welcomed. Papers are published in English, but submissions are welcomed from any country. Contributions should be of a standard which merits presentation before an international readership.

Papers may assume either of the following forms:

#### ■ *Original articles*

These should make an original contribution to empirical knowledge, to the theoretical understanding of the subject, or to the development of clinical research and practice. Adult data are not usually accepted for publication unless they bear directly on developmental issues in childhood and adolescence. *Original articles* should not exceed 6000 words, including title page, abstract, references, tables, and figures. Limit tables and figures to 5 or fewer double-spaced manuscript pages. The word count of both text and references should be clearly stated on the front page.

#### ■ *Review articles*

These will survey an important area of interest within the general field and may be offered or commissioned. All papers in the Annual Research Review, Annotations and Practitioner Reviews are usually commissioned.

### General

1. Submission of a paper to the *Journal* will be held to imply that it represents an original contribution not previously published (except in the form of an abstract or preliminary report); that it is not being considered for publication elsewhere; and that, if accepted by the *Journal*, it will not be published elsewhere in the same form, in any language, without the consent of the Editors. When submitting a manuscript, authors should state in a covering letter whether they have currently in press, submitted or in preparation any other papers that are based on the same data set, and, if so, provide details for the Editors.

***Ethics***

2. Authors are reminded that the *Journal* adheres to the ethics of scientific publication as detailed in the *Ethical principles of psychologists and code of conduct* (American Psychological Association, 1992). These principles also imply that the piecemeal, or fragmented publication of small amounts of data from the same study is not acceptable.

3. Papers should be submitted online. For detailed instructions please go to:

<http://acamh.manuscriptcentral.com> Previous users can *Check for existing account*. New users should *Create a new account*. Alternatively, contributions, correspondence and a disk containing all files can be sent to The Editors, JCPP, St Saviour's House, 39/41 Union Street, London SE1 1SD, UK. Telephone: +44 (0)20 7403 7458, Faxline: +44 (0)20 7403 7081, E-mail: [Carole.Sutherland@acamh.org.uk](mailto:Carole.Sutherland@acamh.org.uk)

Upon acceptance of a paper, the author will be asked to transfer copyright to the ACAMH.

***Manuscript Submission***

1. The manuscript should be typed clearly on one side only of white A4 (8 x 11 inches or 210 x 297 mm) paper, and double-spaced throughout including references and tables, with wide margins. Sheets should be numbered consecutively. A letter giving the name, telephone and fax number, and email address of the author to whom communication should be addressed should accompany the submission. Authors not submitting online should send 2 copies of the manuscript together with a 3.5 floppy disk containing all relevant files. The preferred file formats are MS Word or WordPerfect, and should be PC compatible. If using other packages the file should be saved as Rich Text Format or Text only.

2. Papers should be concise and written in English in a readily understandable style. Care should be taken to avoid racist or sexist language, and statistical presentation should be clear and unambiguous. The *Journal* follows the style recommendations given in the *Publication Manual of the American Psychological Association* (5th edition, 2001), available from the Order Department, APA, P.O. Box 2710, Hyattsville, MD 20784, USA.

3. The *Journal* is **not** able to offer a translation service, but, in order to help authors whose first language is not English, the Editors will be happy to arrange for accepted papers to be prepared for publication in English by a sub-editor.

***Layout******1. Title***

The first page of the manuscript should give the title, name(s) and short address(es) of author(s), and an abbreviated title (for use as a running head) of up to 80 characters. Authors requesting masked review should provide a first page with the title only and adapt the manuscripts accordingly.

***2. Abstract***

The abstract should not exceed 300 words and should be structured in the following way with bold marked headings: Background; Methods; Results; Conclusions; Keywords; Abbreviations. The abbreviations will apply where authors are using acronyms for tests or abbreviations not in common usage. Any questions regarding the new structure should be addressed to the Editors.

***3. Headings***

Articles and research reports should be set out in the conventional format: Methods, Results, Discussion and Conclusion. Descriptions of techniques and methods should only be given in detail when they are unfamiliar. There should be no more than three (clearly marked) levels of subheadings used in the text.

#### 4. Acknowledgements

These should appear on a separate sheet, double spaced, at the end of the body of the paper, before the References.

#### 5. Correspondence to:

Full name, address, phone, fax and email details of the corresponding author should appear on a separate sheet of paper at the end of the manuscript, before the References.

#### **Referencing**

The *Journal* follows the text referencing style and reference list style detailed in the *Publication manual of the American Psychological Association* (5th edition).

##### (a) References in text.

References in running text should be quoted as follows: Smith and Brown (1990), or (Smith, 1990), or (Smith, 1980, 1981a, b), or (Smith & Brown, 1982), or (Brown & Green, 1983; Smith, 1982).

For up to five authors, all surnames should be cited in the first instance, with subsequent occurrences cited as et al., e.g. Smith et al. (1981) or (Smith et al., 1981). For six or more authors, cite only the surname of the first author followed by et al. However, all authors should be listed in the Reference List.

Join the names in a multiple author citation in running text by the word 'and'. In parenthetical material, in tables, and in the References List, join the names by an ampersand (&).

References to unpublished material should be avoided.

##### (b) Reference list.

Full references should be given at the end of the article in alphabetical order, and not in footnotes. **Double spacing** must be used.

References to journals should include the authors' surnames and initials, the full title of the paper, the full name of the journal, the year of publication, the volume number, and inclusive page numbers. Titles of journals must not be abbreviated and should be italicised.

References to books should include the authors' surnames and initials, the full title of the book, the place of publication, the publisher's name and the year of publication.

References to articles, chapters and symposia contributions should be cited as per the examples below:  
Kiernan, C. (1981). Sign language in autistic children. *Journal of Child Psychology and Psychiatry*, 22, 215-220.  
Thompson, A. (1981). *Early experience: The new evidence*. Oxford: Pergamon Press.  
Jones, C.C., & Brown, A. (1981). Disorders of perception. In K. Thompson (Ed.), *Problems in early childhood* (pp. 23-84). Oxford: Pergamon Press.

Use Ed.(s) for Editor(s); edn. for edition; p.(pp.) for page (s); Vol. 2 for Volume 2.

#### **Tables and Figures**

All Tables and Figures should be supplied on separate sheets, not included within the text, and have their intended position clearly indicated in the manuscript. They should be constructed so as to be intelligible without reference to the text. Figures should be supplied as high quality original artwork and any lettering or line work should be able to sustain reduction to the final size of reproduction. Tints and complex shading should be avoided and colour should not be used. However, if authors consider colour essential, please note that the extra costs will have to be borne by the authors themselves. Figures supplied on disk must be accompanied by a hard copy and should be originated in a drawing package and saved as an EPS or TIFF file. Halftones should only be included when essential and must be prepared on glossy paper and have good contrast. Table and figure legends should be typed on a separate page.

#### ***Nomenclature and symbols***

Each paper should be consistent within itself as to nomenclature, symbols and units. When referring to drugs, give generic names, not trade names. Greek characters should be clearly indicated.

#### ***Refereeing***

The *Journal* has a policy of anonymous peer review and the initial refereeing process seldom requires more than three months. Most manuscripts will require some revision by the authors before final acceptance. Manuscripts, whether accepted or rejected will not be returned to authors. The Editor's decision on the suitability of a manuscript for publication is final.

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Proofs will be sent to the designated author only. These will be sent via email as a PDF file, therefore a current email address must be provided with the manuscript. Only typographical or factual errors may be changed at proof stage. The publisher reserves the right to charge authors for correction of non-typographical errors.

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In psychology, as in other scientific disciplines, professional communications are presumed to be based on objective interpretations of evidence and unbiased interpretations of fact. An author's economic and commercial interests in products or services used or discussed in their papers may colour such objectivity. Although such relationships do not necessarily constitute a conflict of interest, the integrity of the field requires disclosure of the possibilities of such potentially distorting influences where they may exist. The reader may then judge and, if necessary, make allowance for the impact of the bias on the information being reported.

In general, the safest and most open course of action is to disclose activities and relationships that, if known to others, might be viewed as a conflict of interest, even if you do not believe that any conflict or bias exists.

Whether an interest is 'significant' will depend on individual circumstances and cannot be defined by a cash amount. Holdings in a company through a mutual fund are not ordinarily sufficient to warrant disclosure, whereas salaries, research grants, consulting fees, and personal stock holdings would be. Being the copyright holder of and/or recipient of royalties from a psychological test might be another example. Participation on a board of directors or any other relationship with an entity or person that is in some way part of the paper should also be carefully considered for possible disclosure.

In addition to disclosure of possible sources of positive bias, authors should also carefully consider disclosure where circumstances could suggest bias *against* a product, service, facility, or person. For example, having a copyright or royalty interest in a competing psychological test or assessment protocol might be seen as a possible source of negative bias against another test instrument.

Therefore, Authors will also be required to complete a Declaration of Interest form. Please download a copy of the form [here](#).

**Top** 

## Appendix B



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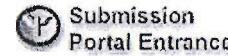
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Cynthia García Coll  
*Developmental Psychology*  
 Center for the Study of Human Development  
 Brown University  
 Box 1831  
 133 Waterman Street  
 Providence, Rhode Island 02912



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General correspondence may be directed to the [Editor's Office](#).

**Submissions: Length.** Manuscripts must not exceed 10,500 words (approximately 35 double-spaced pages in 12-point Times New Roman font), not including references, tables, and figures. Manuscripts that exceed this limit will not be considered. **Supplemental materials.** APA can now place supplementary materials online (e.g., questionnaires, more detailed procedures, pilot studies, videos), which will be available to readers via the journal's Web page. To submit such materials, please see [Supplementing Your Article With Online Material](#) for details. **Brief Reports.** Brief Reports consisting of 1,200–3,600 words (approximately 4–12 double-spaced pages in 12-point Times New Roman font) may be submitted for consideration.

**Manuscript Preparation and APA Style:** Authors should prepare manuscripts according to the *Publication Manual of the American Psychological Association* (5th ed.). Typing instructions (all copy must be double spaced) and instructions on the preparation of tables, figures, references, metrics, and abstracts appear in the *Publication Manual*. Please see APA's [Checklist for Manuscript Submission](#), which outlines APA style and formatting. All manuscripts are copyedited for bias-free language (see chap. 2 of the *Publication Manual*). Manuscripts will not be considered if they do not conform to APA style. **Abstract and keywords.** All manuscripts must include an abstract containing a maximum of 120 words typed on a separate page. After the abstract, please supply up to five keywords or brief phrases. **References.** References should be listed in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References. Basic formats for journal, book, and book chapter are as follows:

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology*, 32, 988–998.

Kagan, J., & Lamb, S. (1987). *The emergence of morality in young children*. Chicago: University of Chicago Press.

Fivush, R. (1997). Event memory in early childhood. In C. Nelson (Ed.), *The development of memory in childhood* (pp. 139–161). Hillsdale, NJ: Erlbaum.

**Figures.** Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint. High-quality printouts or glossies must be submitted for *all* figures. The minimum line weight for line art is 0.5 point for optimal printing. When possible, please place symbol legends below the figure image instead of to the side. Original color figures may be printed in color at the editor's and publisher's discretion and provided the author agrees to pay half of the associated production costs; an estimate of these costs is available from the APA production office on request. **Permissions.** Authors are required to obtain and provide to the editor on final acceptance all necessary permissions to reproduce in print and electronic form any copyrighted work, including, for example, test materials (or portions thereof) and photographs of people.

**Facilitating Manuscript Review:** In addition to E-mail addresses, authors should supply mailing addresses, phone numbers, and fax numbers. Most correspondence will be handled by E-mail. Authors should keep a copy of the manuscript to guard against loss. **Masked review policy.** This journal uses masked review for all submissions. Every effort should be made to see that the manuscript itself contains no clues to the authors' identity. The submission letter should indicate the title of the manuscript, the authors' names and institutional affiliations, and the date the manuscript is submitted. The first page of the manuscript should omit the authors' names and affiliations but should include the title of the manuscript and the date it is submitted. Author notes, acknowledgments, and footnotes containing information pertaining to the authors' identity or affiliations may be added on acceptance.

**Methodology: Description of sample.** Authors should be sure to report the procedures for sample selection and recruitment. Major demographic characteristics should be reported, such as sex, age, socioeconomic status, race/ethnicity, and, when possible and appropriate, disability status and sexual orientation. Even when such demographic characteristics are not analytic variables, they provide a more complete understanding of the sample and of the generalizability of the findings and are useful in future meta-analytic studies. **Significance.** For all study results, measures of both practical and statistical significance should be reported. The latter can involve either a standard error or an appropriate confidence interval. Practical significance can be reported using an effect size, a standardized regression coefficient, a factor loading, or an odds ratio. **Reliability.** Manuscripts should include information regarding the establishment of interrater reliability when relevant, including the mechanisms used to establish reliability and the statistical verification of rater agreement and excluding the names of the trainers and the amount of personal contact with such individuals.

**Publication Policies:** APA policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications. APA's policy regarding posting articles on the Internet may be found at [Posting Articles on the Internet](#). In addition, it is a violation of APA Ethical Principles to publish "as original data, data that have been previously published" (Standard 8.13). As this journal is a primary journal that publishes original material only, APA policy prohibits as well publication of any manuscript that has already been published in whole or substantial part elsewhere. Authors have an obligation to consult journal editors concerning prior publication of any data upon which their article depends. In addition, APA Ethical Principles specify that "after research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose, provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their

"release" (Standard 8.14). APA expects authors submitting to this journal to adhere to these standards. Specifically, authors of manuscripts submitted to APA journals are expected to have their data available throughout the review process and for at least 5 years after the date of publication.

**If Accepted for Publication in *Developmental Psychology*: Ethical standards.** Authors will be required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment. A copy of the APA Ethical Principles may be obtained electronically or by writing the APA Ethics Office, 750 First Street, NE, Washington, DC 20002-4242. **Conflict of interest.** APA requires authors to reveal any possible conflict of interest in the conduct and reporting of research (e.g., financial interests in a test procedure, funding by pharmaceutical companies for drug research). **Copyright.** Authors of accepted manuscripts will be required to transfer copyright of their article to APA. The necessary forms for complying with these requirements may be viewed at APA's Author's Corner. **Preparing files for production.** If your manuscript is accepted for publication, please follow the guidelines for file formats and naming provided at Preparing Your Electronic Files for Production. Please ensure that the final version for production includes a byline and full author note for typesetting.

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## Appendix C

## Appendix C. *Underlying Structure of STEP*

5-STAGE MODEL OF EMPATHIC AROUSAL HOFFMAN (2000)	CONTENT AREA	MANIFESTATIONS	SAMPLE QUESTIONS
1. MIMICRY  Unconsciously imitating the protagonist's facial expression, which triggers afferent feedback and produces feelings in the observer that match the feelings of the protagonist.	FACIAL CUE  Determine emotion from protagonist's <b>facial expression</b> .	Child smiling ( <i>happy</i> ) Child tearful ( <i>sad</i> ) Child frowning ( <i>angry</i> ) Child cowering ( <i>scared</i> )	"How does X feel?"  "How did you feel when you saw X?"
2. CLASSICAL CONDITIONING  Empathic feelings are conditioned responses obtained from observing someone in an emotional state at the same time the observer has had their own independent experience of emotion.			
3. DIRECT ASSOCIATION  Cues in the protagonist's situation remind the observer of similar experiences in their own past and evoke feelings in them that fit the protagonist's situation.	SITUATIONAL CUE  Determine emotion from the protagonist's <b>situation</b> . The protagonist faces away from the camera.	Goes out to play ( <i>happy</i> ) Pet dog runs away ( <i>sad</i> ) Peer snatches food ( <i>angry</i> ) Has a nightmare ( <i>frightened</i> )	"How did X feel when he/she went out to play?"  "How did you feel when X went out to play?"

Appendix C. (continued)

5-STAGE MODEL OF EMPATHIC AROUSAL HOFFMAN (2000)	CONTENT AREA	MANIFESTATIONS	SAMPLE QUESTIONS
4. MEDIATED ASSOCIATION	<p><b>VERBAL CUE</b></p> <p>Determine emotion from the protagonist's <b>verbal comment</b>. The protagonist faces away from the camera. The protagonist's emotional response is not evident from the situational cues alone.</p>	<p>Child sat at dinner table "Yummy pudding." (<i>happy</i>)</p> <p>Child playing in his room "My toy is broken." (<i>sad</i>)</p> <p>Child talking to parent "No I won't go to bed!" (<i>angry</i>)</p> <p>Child sitting on swing "Stop! I'm going too high." (<i>frightened</i>)</p>	<p>"How did X feel when he/she cried out?"</p> <p>"How did you feel when X cried out?"</p>
5. PERSPECTIVE-TAKING	<p><b>DESIRE CUE</b></p> <p>Determine emotion from protagonist's <b>desire</b>. The protagonist faces away from the camera. The protagonist's emotional response is not evident from the situational cues. The protagonist's desires are nonverbal and explicit (e.g. pictures in thought bubbles).</p>	<p>Wants the grey crayon Given the grey crayon (<i>happy</i>)</p> <p>Wants his blankie Give his cuddly teddy (<i>sad</i>)</p> <p>Wants to play with broken toy Broken toy taken away and replaced with new (undesirable) toy (<i>angry</i>)</p> <p>Doesn't like frogs Given a frog-shaped pudding (<i>frightened</i>)</p>	<p>"How did X feel when she was given the grey crayon?"</p> <p>"How did you feel when X was given the grey crayon?"</p>

## Appendix D

## Dissertation: Ethics Application (18 of 63)

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Dear Alex

Re: The Preliminary Development of a Computer-Based,  
Composite Measure of Empathy in Pre-School Children

The above titled application was approved by the School of Psychology  
Ethics Committee on 27 July 2004.

Should you require any further information, please do not hesitate in  
contacting me. Please quote reference CLIN/03/47.

Best wishes,

Kathryn  
Secretary to the Ethics Committee

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## Appendix E



University of Southampton      Tel      +44 (0)23 8059 5321  
Highfield                      Fax      +44 (0)23 8059 2588  
Southampton                      Email  
SO17 1BJ United Kingdom

<Date>

Dear Parent,

My name is Alex Howe and I am carrying out a research project as part of my doctoral degree in Clinical Psychology. I am developing a computerised measure that will assess children's empathy - their ability to recognise, understand and share in the emotions of others. This is an important skill in young children and is associated with the ability to make friends at school, as well as later wellbeing.

<Manager's Name>, the owner of your child's nursery, has agreed to let me recruit participants from <Nursery Name>. I am therefore writing to you to inform you about this research study and ask if you would be prepared to give your permission for your child to be included. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the enclosed information sheet carefully and discuss it with others if you wish. Do not hesitate to contact me if there is anything that is not clear or if you would like more information (amh302@soton.ac.uk; 07730 614959). A summary of the findings will be available to you, on completion of the project (around June 2005).

In addition to the information sheet, I have also enclosed three copies of a written consent form. If you agree to your child's participation please sign all three consent forms, retain one for yourself and return the others to <Manager's Name> at the nursery as soon as possible.

Many thanks for your time and consideration.

Yours sincerely,

Miss Alex Howe  
Trainee Clinical Psychologist  
University of Southampton

Supervised by  
Dr Tony Brown & Dr Julie Hadwin  
University of Southampton



University of Southampton	Tel	+44 (0)23 8059 5321
Highfield	Fax	+44 (0)23 8059 2588
Southampton	Email	
SO17 1BJ United Kingdom		

### **PARENT/GUARDIAN INFORMATION SHEET**

#### **The development of a computerised measure of empathy in preschool children**

Date: 9 June 2004

Version: 1:1

#### **What is the purpose of the study?**

Empathy, the ability to recognise, understand and share another person's feelings, is an important skill in young children. Children who are more empathic find it easier to make friends and adjust to the school environment. At Southampton University, we are designing a brief, computerised measure of empathy. This research is in its early stages. However, we hope that the measure will eventually be used in nursery schools to identify children who may benefit from additional help and support in their transition into the school environment. We also hope to use the measure in clinical practice to assess children who find it difficult to talk to adults (e.g. children who have experienced abuse or neglect).

#### **Why has my child been chosen?**

Every child between three and four years of age attending **<Nursery's Name>** has been selected to take part in this research. A total of 60 children will be recruited from nurseries across Dorset and Hampshire.

#### **Does my child have to take part?**

It is up to you to decide whether or not you would like your child to take part in this study. If you do give your permission, please rest assured that we will not force your child to participate. Only children whose parents have consented to the project and who appear happy and willing to take part will be involved in the study.

You may withdraw your consent for your child to participate in the study at any point prior to the submission of the final report in Spring 2005. Should this occur, your child's data will be removed from the database and destroyed.

#### **What will happen if my child does take part?**

Your child will participate in a 30-minute *play* session. This will take place within a sectioned area of his or her nursery. Your child will be shown twelve short cartoons, each about a principle character (e.g. Chloe visits the seaside). These stories have been designed to be fun and interesting for your child. Throughout each cartoon, your child will be asked to identify the character's emotion and how the story made them feel. Occasionally, the stories may elicit mild feelings of sadness or anxiety in your child (e.g. James loses his pet dog). We have therefore ensured that each one ends happily (e.g. James finds his dog).

After taking part in the study your child will receive a certificate and goodie bag (containing stickers, bubbles and a small bag of sweets).

**Will my child's taking part in the study be kept confidential?**

All information, which is collected during the course of the research, will be kept strictly confidential.

**What will happen to the results of the study?**

A report of the study will be written as part of my Doctorate in Clinical Psychology. A summary of the findings is available to you upon request (June 2005).

**Who has reviewed the study?**

The Department of Psychology Research Ethics Committee, University of Southampton has reviewed the study.

If you have any questions about your rights or your child's rights as a participant in this research or you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Tel: 023 8059 3995.

**Contact for further information**

If you would like to discuss the study further before deciding whether you would like your child to take part, or if you would like to request a summary of the findings, please do not hesitate to contact me:

Alex Howe, Department of Clinical Psychology, University of Southampton, SO17 1PN.

Tel: 023 8059 5321 or 07730 614959, Email: [amh302@soton.ac.uk](mailto:amh302@soton.ac.uk)

Similarly, if you have any queries or concerns arising as a result of your child's participation in the study, please do not hesitate to contact me (as above) or my supervisor, Dr Tony Brown ([acb2@soton.ac.uk](mailto:acb2@soton.ac.uk); 023 8059 5576).

Thank you for your time and consideration.



---

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SO17 1BJ United Kingdom

**CONSENT FORM**

**Title of Project: Development of a computer-based measure of empathy in preschoolers**

**Name of Researcher: Alex Howe**

**Participant's full name:**

**Participant's allocated research number:**

**Please initial box:**

1. I confirm that I have read and understand the information sheet dated 9 June 2004 (Version 1:1) for the above study and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I am free to withdraw my consent at any time, without giving a reason.

3. I understand that strict confidentiality will be maintained and that no information that could lead to the identification of my child will be disclosed in any reports on the project, or to any other party.

4. I am happy for my child to take part in the above study.

---

Name of parent

---

Date

---

Signature

---

Researcher

---

Date

---

Signature

**1 for parent; 1 for nursery; 1 for researcher**

---

University of Southampton	Tel	+44 (0)23 8059 5321
Highfield	Fax	+44 (0)23 8059 2588
Southampton	Email	
SO17 1BJ United Kingdom		

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<Date>

Dear Parent,

Re: Developing a computerised measure of empathy in preschool children

My name is Alex Howe and I am carrying out a research project as part of my doctoral degree in Clinical Psychology at the University of Southampton. I am developing a computerised measure that will assess children's empathy - their ability to recognise, understand and share in the emotions of others. This is an important skill in young children and is associated with the ability to make friends at school, as well as later wellbeing.

As part of this project, I will be making several short films of children in different situations (e.g. Jack's Robot). Children (aged 3-4) will then view these videos and decide what emotion the character in the story is experiencing. <Manager's Name>, manager of your child's acting club, has agreed to let me recruit actors and actresses from <Drama Group Name>, who will be involved in the making of these videos. I am therefore writing to you to inform you about the project and ask if you would be prepared to give your permission for your child to take part. Filming will take place on <date> with a professional camera crew. Your child will receive a copy of their "movie" as well as a gift token for their participation.

Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the enclosed information sheet carefully and discuss it with others if you wish. Do not hesitate to contact me if there is anything that is not clear or if you would like more information (amh302@soton.ac.uk; 07730 614959).

If you agree to your child's participation, please contact me to register your interest. This is a great opportunity to experience working with a professional camera crew and there are only a limited number of roles available so please respond promptly to avoid disappointment.

Many thanks for your time and consideration.

Yours sincerely,

Miss Alex Howe  
Trainee Clinical Psychologist  
University of Southampton

Supervised by  
Dr Tony Brown & Dr Julie Hadwin  
University of Southampton



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## **PARENT/GUARDIAN INFORMATION SHEET**

### **The development of a computerised measure of empathy in preschool children**

Date: 20 August 2004

Version: 5:3

#### **What is the purpose of the study?**

Empathy, the ability to recognise, understand and share another person's feelings, is an important skill in young children. Children who are more empathic find it easier to make friends and adjust to the school environment. At Southampton University, we are designing a brief, computerised measure of empathy. This research is in its early stages. However, we hope that the measure will eventually be used in nursery schools countrywide to identify children who may benefit from additional help and support in their transition into the school environment. We also hope to use the measure in clinical practice to assess children who find it difficult to talk to adults (e.g. children who have experienced abuse or neglect).

#### **Why has my child been chosen?**

We are inviting children between 5 and 9 years of age who attend <Drama Group> to take part in the videos.

#### **Does my child have to take part?**

It is up to you to decide whether or not you would like your child to take part in this study. If you do give your permission, please rest assured that we will not force your child to participate. Only children whose parents have consented to the project and who appear happy and willing to take part will be involved in the study.

You may withdraw your consent for your child to participate in the study at any point prior to the completion of the measure in October 2004. Should this occur, your child's video-clips will be destroyed.

#### **What will happen if my child does take part?**

Your child will be given a character to play. Each character is built into a particular story (e.g. Jack's robot). Throughout the story, the character experiences a range of mild emotions (e.g. happiness at receiving a present; sadness at losing their pet; anger at being hurt by a peer; fear at seeing a spider), although each one has a happy ending (e.g. the pet is found). Your child will be asked to pretend to be one of the characters and act out each of the scenarios. A professional camera team, who have also worked for Meridian and the BBC, will film this. The films will then be edited and inserted into the computerised measure.

Filming will take place at various nearby locations on <date>. Each story will take approximately two hours to film. Your child will need to be accompanied by a parent or guardian during this time. Refreshments will be provided for everyone.

Once filming is complete, your child will be given a sheet informing them about the project as well as a small gift token for their contribution. We will also send you a copy of your child's video-clips on disc as soon as they are available (October 2004).

#### **What will happen to the video-clips of my child?**

The videos will be used in a computerised measure of empathy, which will be shown to young children (aged 3-4) as part of the study. Each child will watch the video-clips and then decide how the character in the film was feeling using a series of emotional faces provided at the bottom of the screen. If the study proves successful, the video-clips will be used in future research and also in clinical settings as a measure of emotional understanding. Those involved in the development of the measure will not receive any further financial gain.

#### **Will my child's taking part in the study be kept confidential?**

All personal information, which is collected during the course of the research, will be kept strictly confidential. The videotapes will be kept safe and at no point will any names, addresses or personal details be associated with them.

#### **What will happen to the results of the study?**

A report of the study will be written as part of my Doctorate in Clinical Psychology. If you are interested, a summary of the findings will be available to you on completion of the study (June 2005).

#### **Who has reviewed the study?**

The Department of Psychology Research Ethics Committee, University of Southampton has reviewed the study.

If you have any questions about your rights or your child's rights as a participant in this research or you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Tel: 023 8059 3995.

#### **Contact for further information**

If you would like to discuss the study further before deciding whether you would like your child to take part, or if you have any questions, please do not hesitate to contact me:

Alex Howe, Department of Clinical Psychology, University of Southampton, SO17 1PN.

Tel: 023 8059 5321 or 07730 614959, Email: [amh302@soton.ac.uk](mailto:amh302@soton.ac.uk)



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**PARENTAL CONSENT FORM**

**Title of Project: Development of a computer-based measure of empathy in preschoolers**

**Name of Researcher: Alex Howe**

**Child's full name:**

**Child's character's name:**

**Please initial box:**

1. I confirm that I have read the information sheet dated 20 August 2004 (version 5:3) and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I am free to withdraw my consent at any time, without giving a reason.

3. I am willing to allow my child to take part in the filming and understand that strict confidentiality will be maintained and that no personal information that could lead to the identification of my child will be associated with the video-clips, disclosed in any reports on the project, or to any other party.

4. I understand that the video-clips of my child will be used in the above research project and in future projects with young children.

5. I am happy for my child to take part in the above project.

---

Name of parent

---

Date

---

Signature

---

Researcher

---

Date

---

Signature

**1 for parent; 1 for researcher**



### **CONSENT FORM**

#### **Developing a computer questionnaire for young children**



I am Alex Howe and I work at the University of Southampton. I am developing a questionnaire for young children (age 3-4) that they can complete on a computer. This questionnaire will help me find out how well young children understand emotions.



In the project, I will ask you to pretend to be one of the characters. You will then have to act out four or five different situations where your character feels happy, sad, angry or frightened. Don't worry. All of the stories have a happy ending. The filming will take approximately 2 hours but you can stop taking part at anytime. Once the filming is finished, we will send you your own copy of the video. You will also receive a gift token.



These videos will be shown on a computer to lots of young children. We will not tell these children your real name or anything else about you. The children who watch these videos will have to guess if you were feeling happy, sad, frightened or angry. They will be given points for getting the right answer.



Please ask me if you have any questions about this project. If you would like to take part, please write your name on the line below.



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<Date>

Dear Parent,

My name is Alex Howe and I am carrying out a research project as part of my doctoral degree in Clinical Psychology. I am developing a computerised measure that will assess children's empathy - their ability to recognise, understand and share in the emotions of others. This is an important skill in young children and is associated with the ability to make friends at school, as well as later wellbeing.

Mr/s <Manager's Name>, manager of your child's nursery, has agreed to let me recruit participants from <Nursery Name>. I am therefore writing to you to inform you about this research study and ask if you would be prepared to give your permission for your child to be included. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the enclosed information sheet carefully and discuss it with others if you wish. Do not hesitate to contact me if there is anything that is not clear or if you would like more information (amh302@soton.ac.uk; 07730 614959). A summary of the findings will be available to you, on completion of the project (around June 2005).

In addition to the information sheet, I have also enclosed three copies of a written consent form. If you agree to your child's participation please sign all three consent forms, retain one for yourself and return the others in the envelope provided as soon as possible.

Many thanks for your time and consideration.

Yours sincerely,

Miss Alex Howe  
Trainee Clinical Psychologist  
University of Southampton

Supervised by  
Dr Tony Brown & Dr Julie Hadwin  
University of Southampton

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### **PARENT/GUARDIAN INFORMATION SHEET**

#### **The development of a computerised measure of empathy in preschool children**

Date: 9 June 2004

Version: 2:1

#### **What is the purpose of the study?**

Empathy, the ability to recognise, understand and share another person's feelings, is an important skill in young children. Children who are more empathic find it easier to make friends and adjust to the school environment. At Southampton University, we are designing a brief, computerised measure of empathy. This research is in its early stages. However, we hope that the measure will eventually be used in nursery schools to identify children who may benefit from additional help and support in their transition into the school environment. We also hope to use the measure in clinical practice to assess children who find it difficult to talk to adults (e.g. children who have experienced abuse or neglect).

#### **Why have my child been chosen?**

Every child between three and four years of age attending **<Name of nursery>** has been selected to take part in this research. A total of 60 children will be recruited from nurseries across Dorset and Hampshire.

#### **Does my child have to take part?**

It is up to you to decide whether or not you would like your child to take part in this study. If you do give your permission, please rest assured that we will not force your child to participate. Only children whose parents have consented to the project, and who appear happy and willing to take part, will be involved in the study.

You may withdraw your consent for your child to participate in the study at any point prior to the submission of the final report in Spring 2005. Should this occur, your child's data will be removed from the database and destroyed.

#### **What will happen if my child does take part?**

Your child will participate in a 30-minute *play* session. This will take place within a sectioned area of his or her nursery. Your child will complete the computerised empathy measure. This measure is designed to be fun and involves eight short stories, each about a particular character (e.g.

James and his dog). Throughout each story, your child will be asked to identify the character's emotion and how the story made them feel. Occasionally, the stories may elicit mild feelings of sadness or anxiety in your child (e.g. James loses his pet dog). We have therefore ensured that each one ends happily (e.g. James finds his dog).

After taking part in the study your child will receive a certificate and goodie bag (containing stickers, bubbles and a small bag of sweets).

**Will my child's taking part in the study be kept confidential?**

All information, which is collected during the course of the research, will be kept strictly confidential.

**What will happen to the results of the study?**

A report of the study will be written as part of my Doctorate in Clinical Psychology. A summary of the findings is available to you upon request (June 2005).

**Who has reviewed the study?**

The Department of Psychology Research Ethics Committee, University of Southampton has reviewed the study.

If you have any questions about your rights or your child's rights as a participant in this research or you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Tel: 023 8059 3995.

**Contact for further information**

If you would like to discuss the study further before deciding whether you would like your child to take part, or if you would like to request a summary of the findings, please do not hesitate to contact me:

Alex Howe, Department of Clinical Psychology, University of Southampton, SO17 1PN.

Tel: 023 8059 5321 or 07730 614959, Email: [amh302@soton.ac.uk](mailto:amh302@soton.ac.uk)

Thank you for your time and consideration.



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SO17 1BJ United Kingdom

**CONSENT FORM**

**Title of Project: Development of a computer-based measure of empathy in preschoolers**

**Name of Researcher: Alex Howe**

**Participant's full name:**

**Participant's allocated research number:**

**Please initial box:**

1. I confirm that I have read and understand the information sheet dated 9 June 2004 (Version 2:1) for the above study and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I am free to withdraw my consent at any time, without giving a reason.

3. I understand that strict confidentiality will be maintained and that no information that could lead to the identification of my child will be disclosed in any reports on the project, or to any other party.

4. I am happy for my child to take part in the above study.

---

Name of parent

---

Date

---

Signature

---

Researcher

---

Date

---

Signature

**1 for parent; 1 for nursery; 1 for researcher**



---

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<Date>

Dear Parent,

Re: Developing a computerised measure of empathy in preschool children

My name is Alex Howe and I am carrying out a research project as part of my doctoral degree in Clinical Psychology. I am developing a computerised measure that will assess children's empathy - their ability to recognise, understand and share in the emotions of others. This is an important skill in young children and is associated with the ability to make friends at school, as well as later well-being.

Mr/s <Manager's Name>, manager of your child's nursery, has agreed to let me recruit participants from <Nursery Name>. I am therefore writing to you to inform you about this research study and ask if you would be prepared to give your permission for your child to be included. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the enclosed information sheet carefully and discuss it with others if you wish. Do not hesitate to contact me if there is anything that is not clear or if you would like more information (amh302@soton.ac.uk; 07730 614959). A summary of the findings will be provided to you, on completion of the project (around June 2005).

In addition to the information sheet, we have also enclosed a short questionnaire and three copies of a written consent form. If you agree to your child's participation please sign all three consent forms, retain one for yourself and return the others in the envelope provided as soon as possible, along with the completed questionnaire.

Many thanks for your time and consideration.

Yours sincerely,

Miss Alex Howe  
Trainee Clinical Psychologist  
University of Southampton

Supervised by  
Dr Tony Brown & Dr Julie Hadwin  
University of Southampton



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### PARENT/GUARDIAN INFORMATION SHEET

#### **The development of a computerised measure of empathy in preschool children**

Date: 09 June 2004

Version: 4:1

#### **What is the purpose of the study?**

Empathy, the ability to recognise, understand and share another person's feelings, is an important skill in young children. Children who are more empathic find it easier to make friends and adjust to the school environment. At Southampton University, we are designing a brief, computerised measure of empathy. This research is in its early stages. However, we hope that the measure will eventually be used in nursery schools countrywide to identify children who may benefit from additional help and support in their transition into the school environment. We also hope to use the measure in clinical practice to assess children who find it difficult to talk to adults (e.g. children who have experienced abuse or neglect).

#### **Why have my child been chosen?**

Every child between three and four years of age attending <Nursery's Name> has been selected to take part in this research. A total of 60 children will be recruited from nurseries across Dorset and Hampshire.

#### **Does my child have to take part?**

It is up to you to decide whether or not you would like your child to take part in this study. If you do give your permission, please rest assured that we will not force your child to participate. Only children whose parents have consented to the project, and who appear happy and willing to take part, will be involved in the study.

You may withdraw your consent for your child to participate in the study at any point prior to the submission of the final report in Spring 2005. Should this occur, your child's data will be removed from the database and destroyed.

#### **What will happen if my child does take part?**

Your child will participate in a 30-40 minute *games* session. This will take place within a sectioned area of his or her nursery. Your child will be involved in a number of short, fun tasks designed to assess their verbal (e.g. language) and nonverbal (e.g. abstract) abilities. For example, they will be asked to construct several jigsaw puzzles. These tasks have been specifically designed for preschool children and are commonly used throughout the UK.

In addition to this, your child will be asked to complete the computerised empathy measure. This measure involves eight short stories, each about a particular character (e.g. Thomas and his dog). Throughout each story, your child will be asked to identify the character's emotion and how the story made them feel. Occasionally, the stories may elicit mild feelings of sadness or anxiety in your child (e.g. Thomas loses his pet dog). We have therefore ensured that each one ends happily (e.g. Thomas finds his dog).

To ensure that your child is accurately reporting their feelings (e.g. they are smiling when they say that they feel happy), we will video their facial expressions onto a protected disc for coding. These discs will be stored in a locked filing cabinet at the University and will only be viewed by the investigators. No one else will be given access to these discs.

After taking part in the study your child will receive a certificate and goodie bag (containing stickers, bubbles and a small bag of sweets).

#### **Will my child's taking part in the study be kept confidential?**

All information, which is collected during the course of the research, will be kept strictly confidential. The videotapes will be kept safe and at no point will any names, addresses or personal details be associated with them. On completion of the study you are free to request that the videotapes be destroyed.

#### **What will happen to the results of the study?**

A report of the study will be written as part of my Doctorate in Clinical Psychology. A summary of the findings will be provided to you on completion of the study (June 2005). If you would like further information about your child's performance, you may request this information in writing.

#### **Who has reviewed the study?**

The Department of Psychology Research Ethics Committee, University of Southampton has reviewed the study.

If you have any questions about your rights or your child's rights as a participant in this research or you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Tel: 023 8059 3995.

#### **Contact for further information**

If you would like to discuss the study further before deciding whether you would like to take part, or if you have any questions, please do not hesitate to contact me:

Alex Howe, Department of Clinical Psychology, University of Southampton, SO17 1PN.

Tel: 023 8059 5321 or 07730 614959, Email: [amh302@soton.ac.uk](mailto:amh302@soton.ac.uk)

Similarly, if you have any queries or concerns arising as a result of your child's participation in the study, please do not hesitate to contact me (as above) or my supervisor, Dr Tony Brown ([acb2@soton.ac.uk](mailto:acb2@soton.ac.uk); 023 8059 5576).

Thank you for your time and consideration.



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**CONSENT FORM**

**Title of Project: Development of a computer-based measure of empathy in preschoolers**

**Name of Researcher: Alex Howe**

**Participant's full name:**

**Participant's allocated research number:**

**Please initial box:**

1. I confirm that I have read and understand the information sheet dated 9 June 2004 (Version 4:1) for the above study and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I am free to withdraw my consent at any time, without giving a reason.

3. I am willing to allow my child to be videotaped whilst completing the study and understand that strict confidentiality will be maintained and that no information that could lead to the identification of my child will be disclosed in any reports on the project, or to any other party.

4. I understand that the videotapes will be destroyed after analysis.

5. I am happy for my child to take part in the above study.

---

Name of parent

---

Date

---

Signature

---

Researcher

---

Date

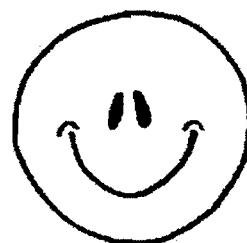
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Signature

1 for parent; 1 for nursery; 1 for researcher

## Appendix F

Appendix F. *Schematic Faces*



Happy



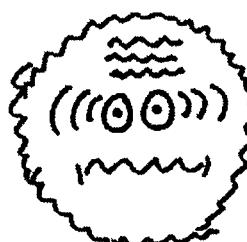
OK/Neutral



Sad



Angry



Frightened

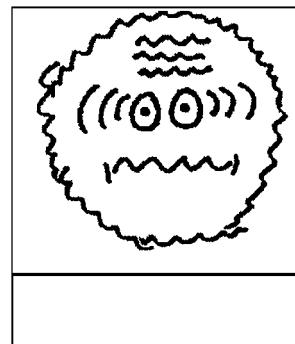
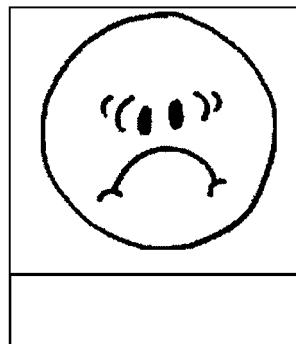
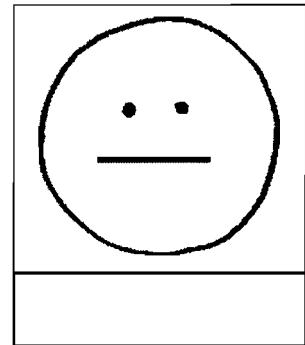
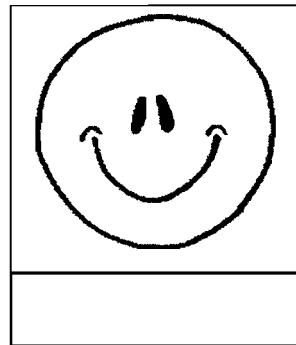
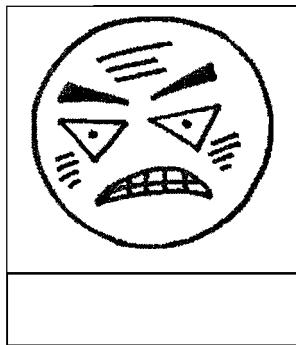
## Appendix G

## EMPATHY QUESTIONNAIRE

This questionnaire incorporates 12 stories about 12 principle characters. In each story, the character experiences a range of emotions. Please read each part of the story and then:

- circle the key emotion that you think the character would experience
- circle the key emotion that you think a child observer watching the situation would feel (the empathic emotion)

Before you start, please could you take a few moments to look at each face and write the emotion that you think it shows in the box below.



Many thanks for your time!

H = Happy

N = Neutral

S = Sad

A = Angry

F = Frightened

Story 1: Chloe visits the seaside

	Chloe feels...	Observer would feel...
Chloe goes to the seaside with her best friend Lauren. They are building a sandcastle.	H N S A F	H N S A F
Later on, Chloe goes swimming in the sea. She cries out "Help me! There's a big fish!"	H N S A F	H N S A F
Chloe runs out of the sea. She wants to finish her sandcastle. Lauren kicks the ball to her.	H N S A F	H N S A F

Story 2: Josh visits the park

	Josh feels...	Observer would feel...
Josh and Matthew are going to the park. They are playing on the swings.	H N S A F	H N S A F
Matthew pushes Josh on the swing. He cries out "Stop! I'm going too high!"	H N S A F	H N S A F
Josh gets off the swing. He wants to play with his kite. He is given the ball.	H N S A F	H N S A F

Story 3: Jessica's first day at school

	Jessica feels...	Observer would feel...
It is Jessica's first day at school. She is all alone. No one will play with her.	H N S A F	H N S A F
Lucy talks to Jessica. Lucy and Jessica are drawing. Jessica cries out "Lucy! Give me back my crayons."	H N S A F	H N S A F
Jessica wants the grey crayon. Lucy gives Jessica the grey crayon.	H N S A F	H N S A F

Story 4: Jack's robot

	Jack feels...	Observer would feel...
Jack is given a new robot. Jack and Sam are playing with the robot. Suddenly, the robot makes a loud BANG!	H N S A F	H N S A F
The robot is quiet. Jack cries out "Oh no! My robot is broken!"	H N S A F	H N S A F
Jack wants to play with his broken robot. Sam takes his robot and gives him another toy.	H N S A F	H N S A F

H = Happy

N = Neutral

S = Sad

A = Angry

F = Frightened

### Story 5: Charlotte and the bike

	Charlotte feels...	Observer would feel...
Charlotte is learning to ride her bike. Charlotte's friends Hannah and Lewis are there. Lewis pushes Charlotte off her bike.	H N S A F	H N S A F
Hannah helps Charlotte. Charlotte cries out "Ow. My knee hurts."	H N S A F	H N S A F
Charlotte wants to go inside. She stands up and goes into the building.	H N S A F	H N S A F

### Story 6: Daniel and the spider

	Daniel feels...	Observer would feel...
Daniel is in the garden. Joe comes to play. He has got a box. In the box is a big, hairy spider.	H N S A F	H N S A F
Daniel falls over. Joe helps him up. Daniel cries out "Oh no! I've ripped my favourite top"	H N S A F	H N S A F
Daniel doesn't like the spider. The spider runs away.	H N S A F	H N S A F

### Story 7: Emily's teatime

	Emily feels...	Observer would feel...
Mummy makes Emily and Luke some tea. Luke steals food off Emily's fork and eats it.	H N S A F	H N S A F
Emily is still hungry. Mummy clears her plate away. Emily cries out: "Yummy pudding time Mummy!"	H N S A F	H N S A F
Emily doesn't like rabbits. Mummy gives her a jelly shaped like a rabbit.	H N S A F	H N S A F

### Story 8: James' bedtime

	James feels...	Observer would feel...
James goes to sleep. He has a dream about a monster.	H N S A F	H N S A F
James runs to Mummy. She cuddles him. James cries out "No Mummy! I won't go back to bed!"	H N S A F	H N S A F
Mummy tucks James in bed. James wants his blankie. He is given his teddy.	H N S A F	H N S A F

H = Happy

N = Neutral

S = Sad

A = Angry

F = Frightened

Story 9: Megan goes to the shop

	Megan feels...	Observer would feel...
Megan goes to the shops with Mummy. Megan wants to push the trolley. Mummy won't let her push the trolley.	H N S A F	H N S A F
In the shop, Megan finds lots of toys. Megan cries out "Mummy! Where are you?"	H N S A F	H N S A F
Mummy finds Megan. Megan wants the pens. She is given the toy bricks.	H N S A F	H N S A F

Story 10: Thomas takes his dog walking

	Thomas feels...	Observer would feel...
Thomas and Daddy go to the park. Pip the dog goes too. At the park, Buster runs away.	H N S A F	H N S A F
Thomas can't find Pip. Thomas cries out "Daddy! I've found him."	H N S A F	H N S A F
Thomas doesn't like big dogs. Pip is playing with a big dog.	H N S A F	H N S A F

Story 11: Sophie's birthday

	Sophie feels...	Observer would feel...
Today is Sophie's birthday. She opens her presents with her brother Mark.	H N S A F	H N S A F
Daddy arrives. He gives Emily a balloon. Sophie cries out "Daddy! Mark has burst my balloon!"	H N S A F	H N S A F
Sophie doesn't like hot candles. She is given a cake with candles on top.	H N S A F	H N S A F

Story 12: Harry is sick

	Harry feels...	Observer would feel...
Harry is poorly.	H N S A F	H N S A F
Daddy gives Harry some medicine. Harry cries out "Mmm! Yummy medicine!"	H N S A F	H N S A F
Harry is tired. He wants to sleep. Daddy wakes him up and gives him a drink.	H N S A F	H N S A F

## Appendix H

BLOCK A; STORY 1

Chloe



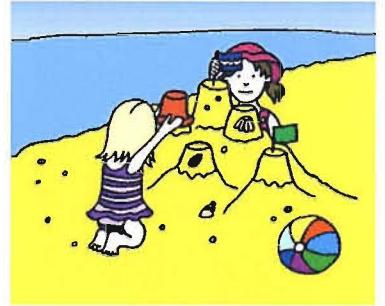
Visits the Seaside



This is Chloe.



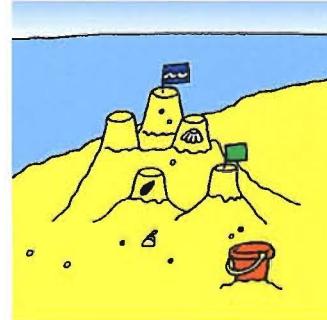
Chloe is sad. She has nothing to do.  
So she goes to the seaside.  
Her best friend Lauren goes too.



Here is Chloe playing with Lauren.



Chloe and Lauren go swimming.  
Chloe cries out "Help me!  
There's a big fish."



Chloe runs out of the sea.  
She wants to finish her sandcastle.



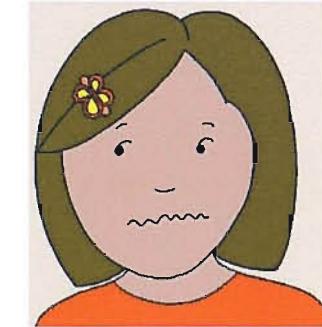
Lauren kicks the ball to Chloe.

BLOCK A; STORY 2

Charlotte's



Bike



This is Charlotte



Charlotte is scared.  
She is learning to ride her bike.  
Hannah and Lewis are there too.



Lewis pushes Charlotte off her bike.



Hannah helps Charlotte.  
Charlotte cries out "Ow! My knee hurts"

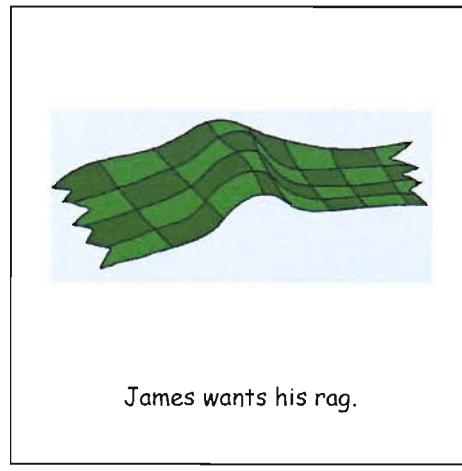
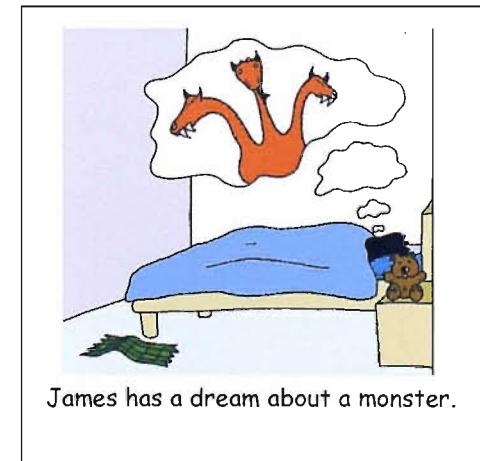
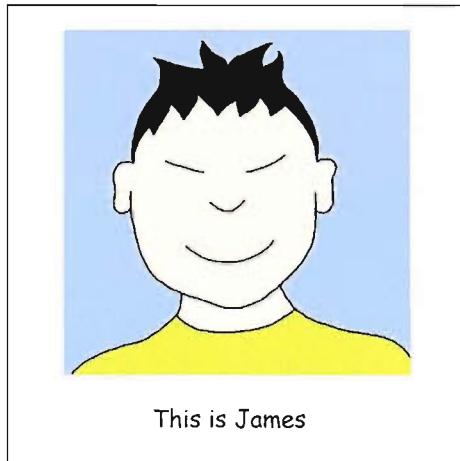


Charlotte wants to go inside.

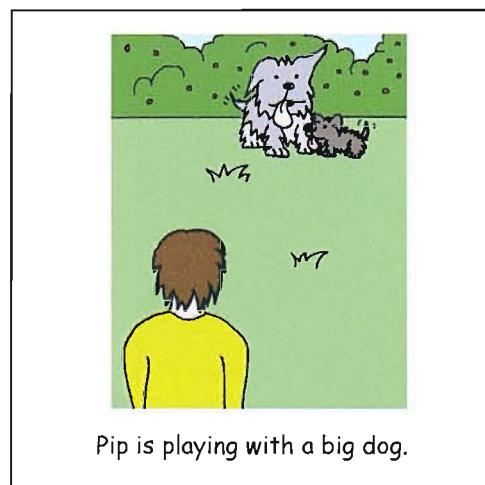
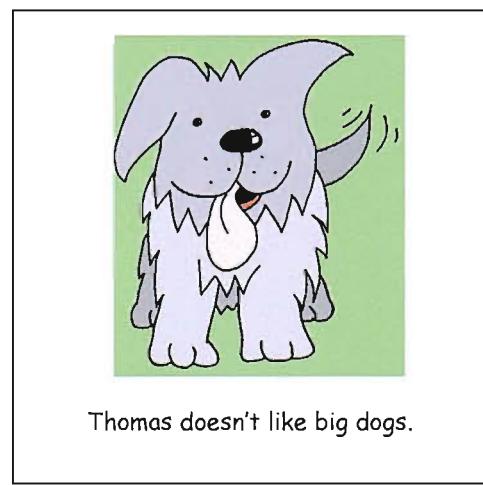
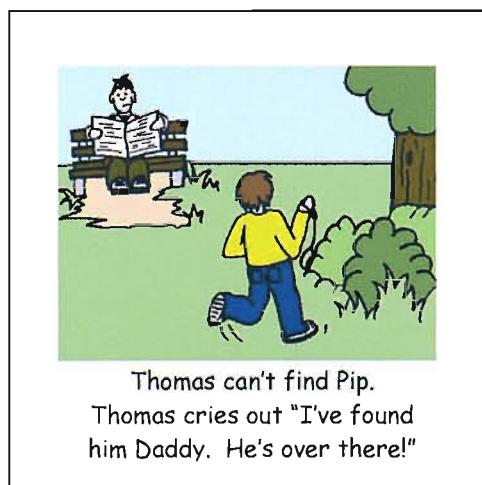
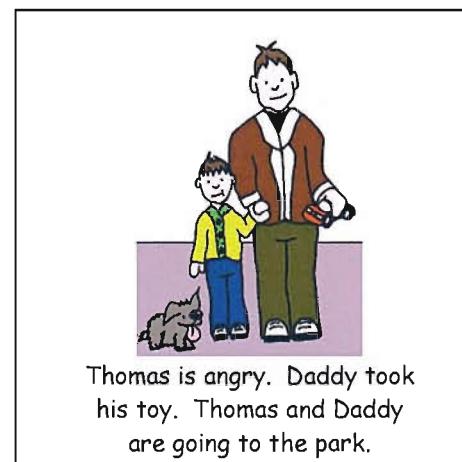
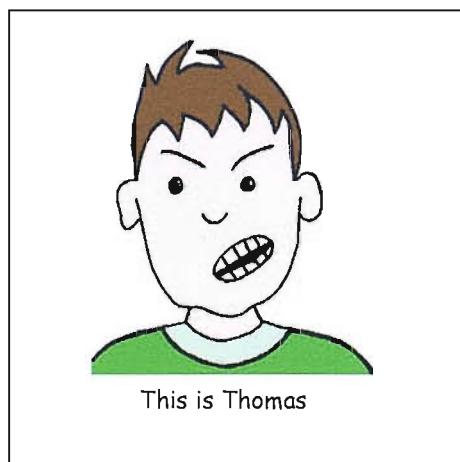
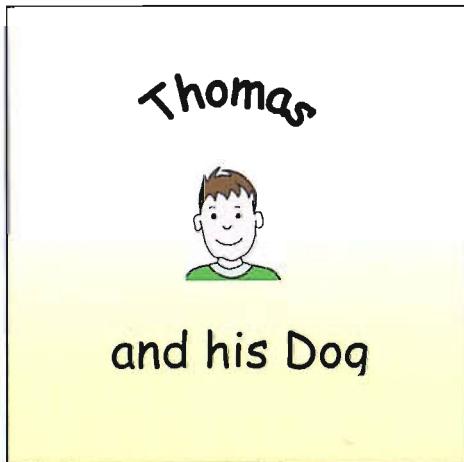


Charlotte can't ride her bike.  
She goes inside.

BLOCK A; STORY 3



BLOCK A; STORY 4

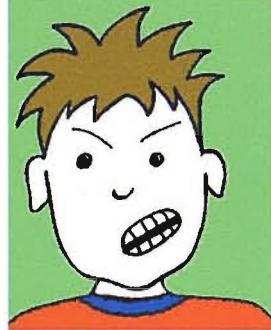


BLOCK B; STORY 1

Josh



Visits the Park



Here is Josh



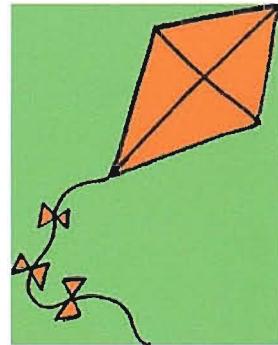
Josh is angry. He's not allowed to go swimming. So he goes to the park. His friend Matthew goes too.



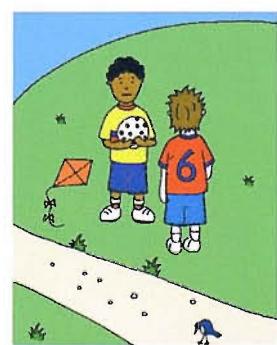
Here is Josh playing.



Matthew pushes Josh on the swing.  
Josh cries out  
"Stop! I'm going too high."

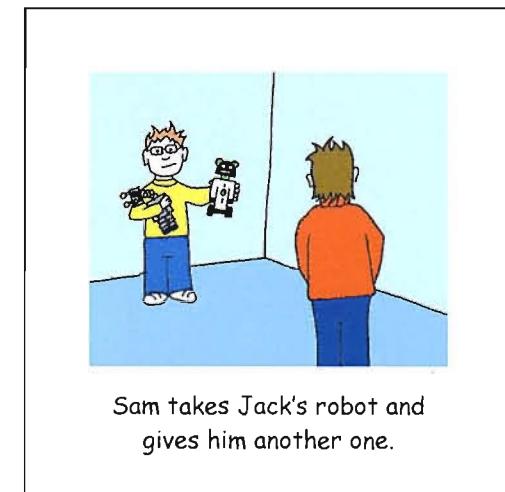
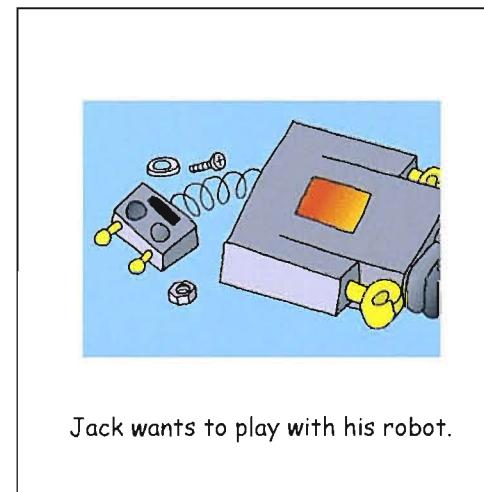
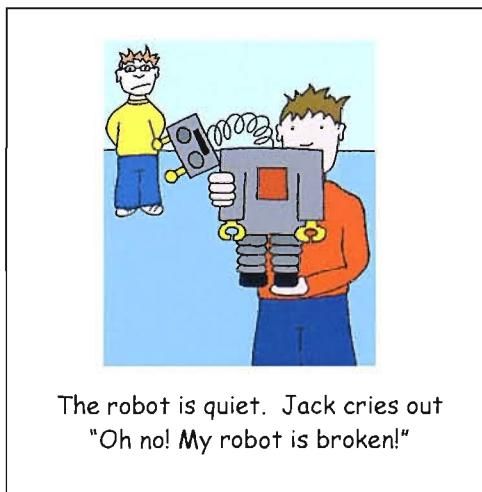
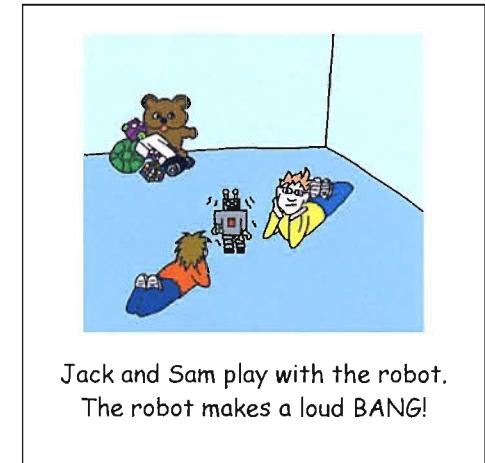
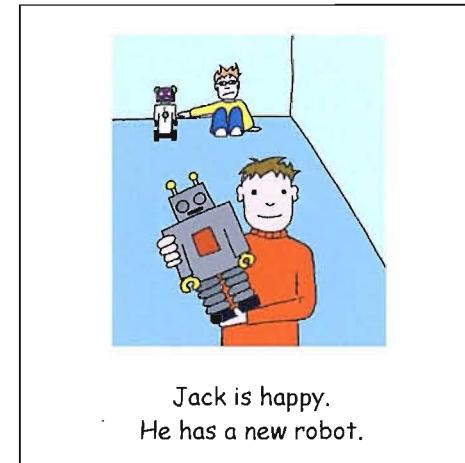
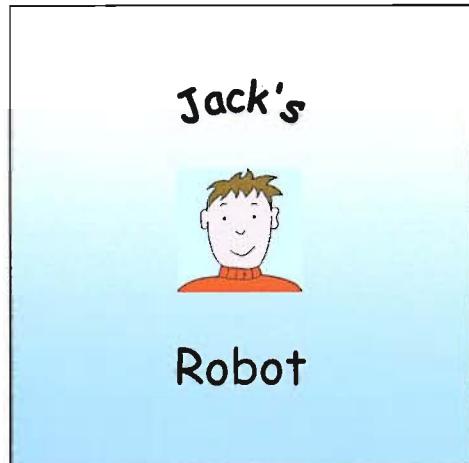


Josh gets off the swing.  
He wants to play with his kite.



Matthew gives him the ball.

BLOCK B; STORY 2

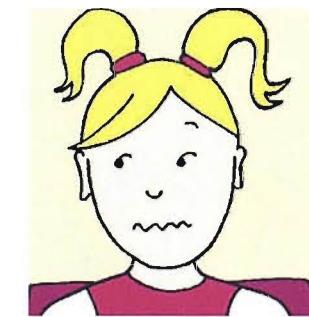


BLOCK B; STORY 3

Jessica's



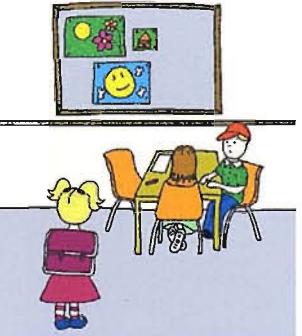
First Day at School



This is Jessica



Jessica is scared.  
It is her first day at school.



Jessica is alone.  
No one will play with her.



Lucy talks to Jessica. Lucy and Jessica are drawing. Jessica cries out "Lucy! Give me back my crayons."

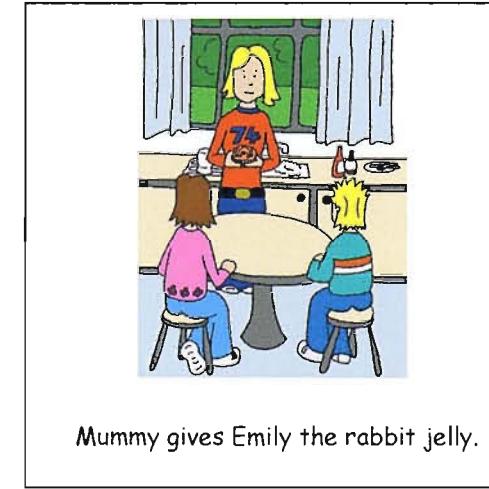
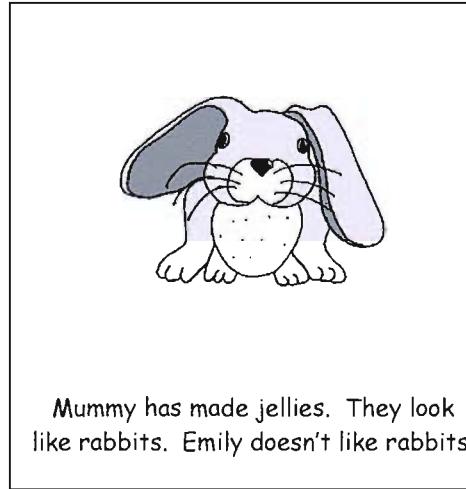
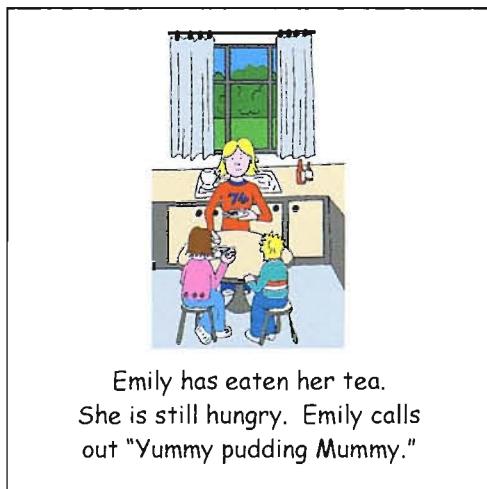
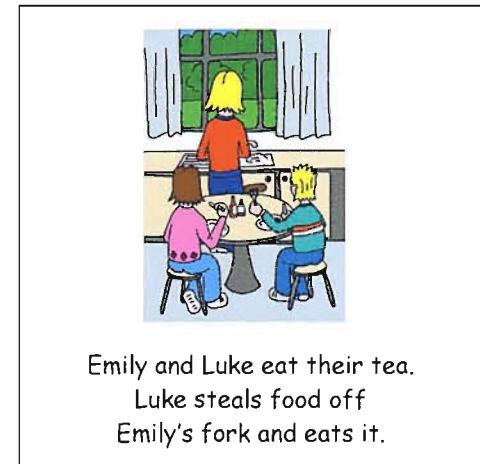
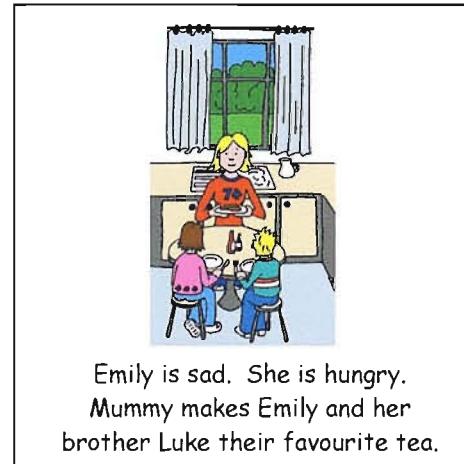
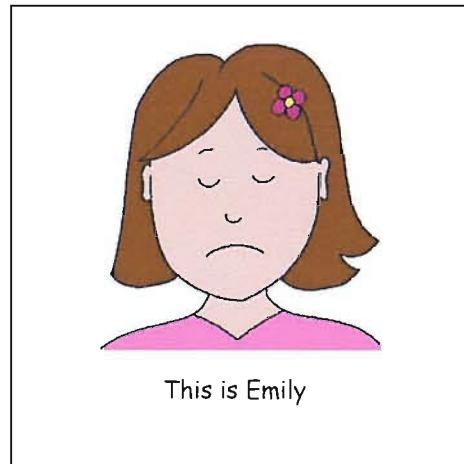
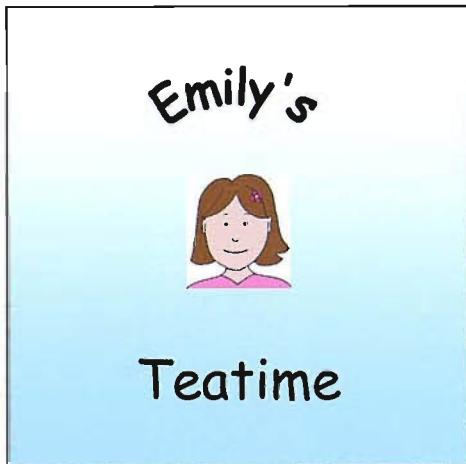


Jessica wants the grey crayon.



Lucy gives Jessica the grey crayon and keeps the sparkly one.

BLOCK B; STORY 4

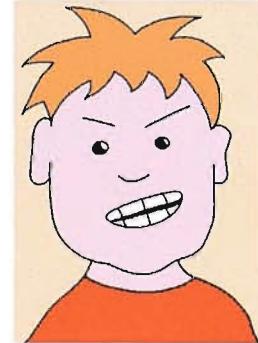


BLOCK C; STORY 1

Daniel



and the Spider



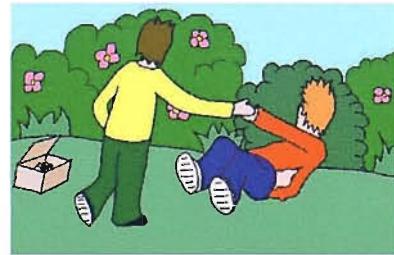
This is Daniel.



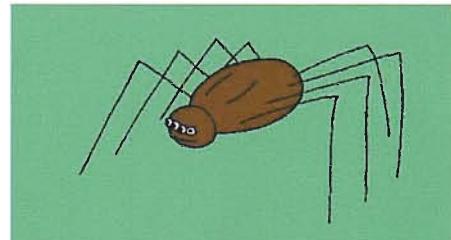
Daniel is angry. He's not allowed to play football. His best friend Joe comes round to play.



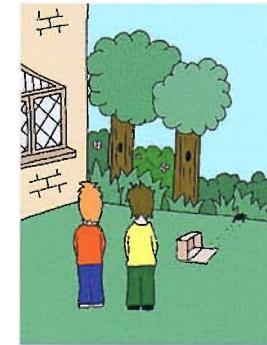
Joe has got a box. In the box is a big hairy spider.



Joe helps Daniel up. Daniel cries out "Oh no! I've ripped my favourite top."

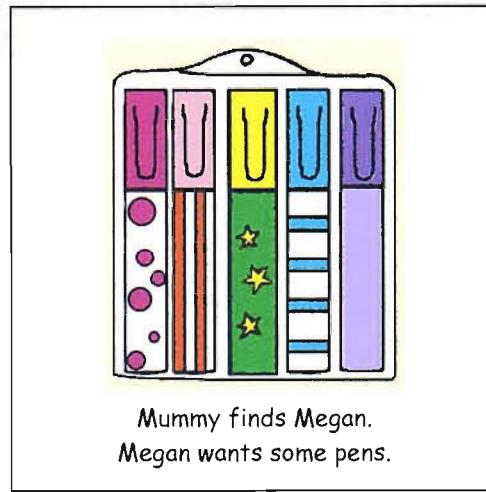
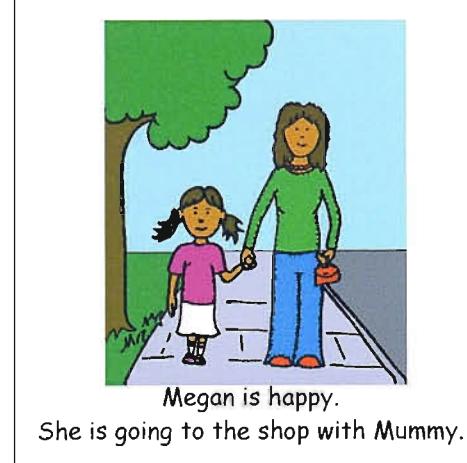
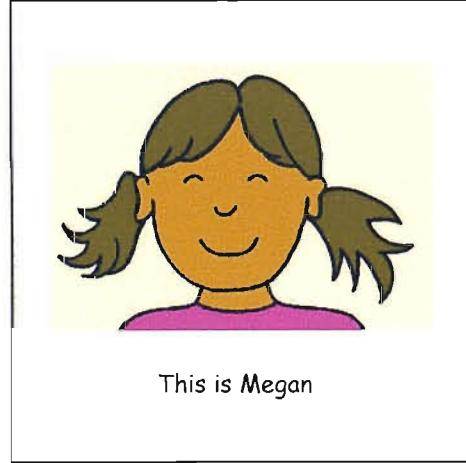
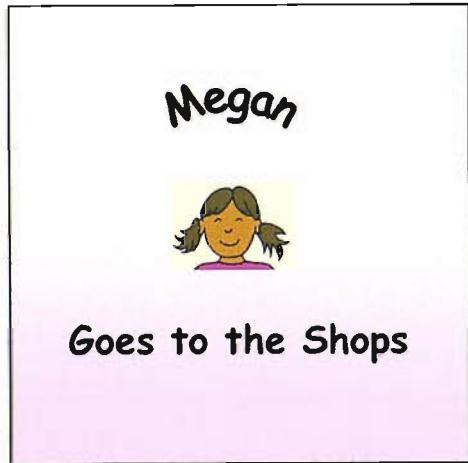


Daniel doesn't like the spider.

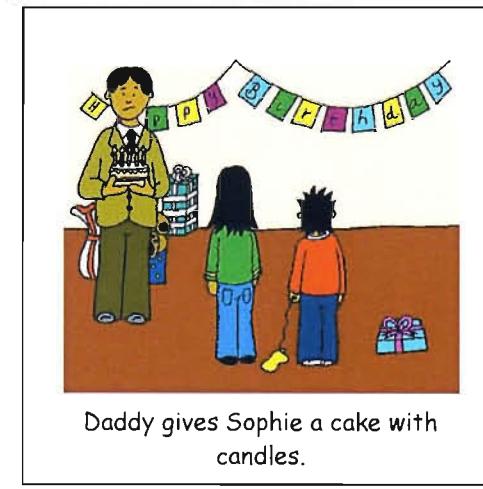
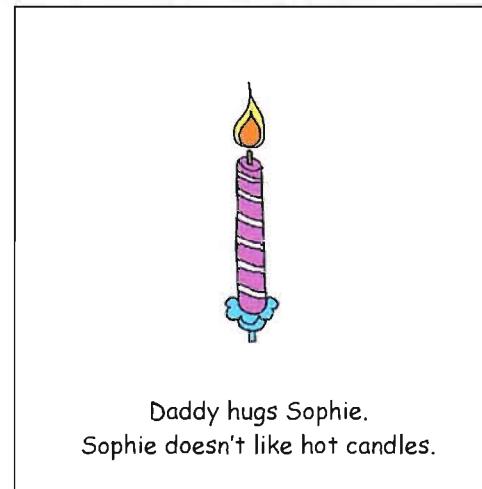
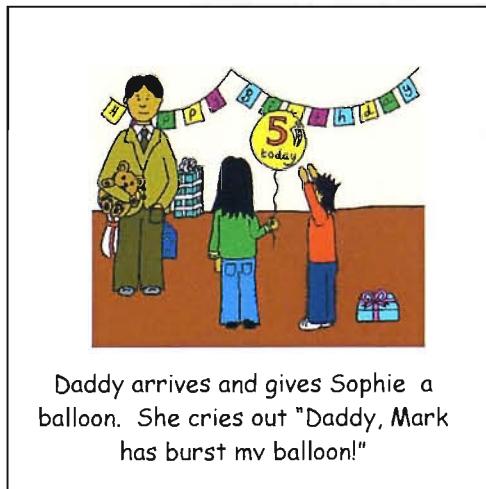
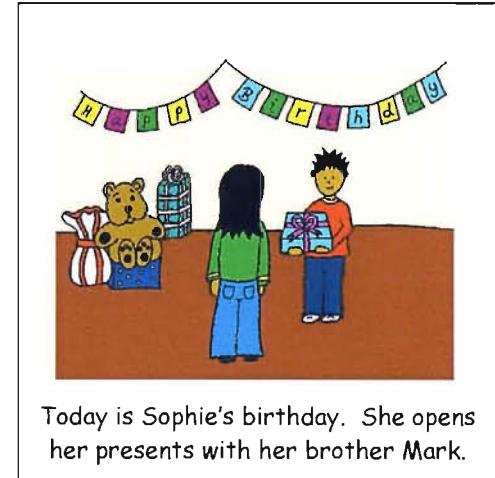
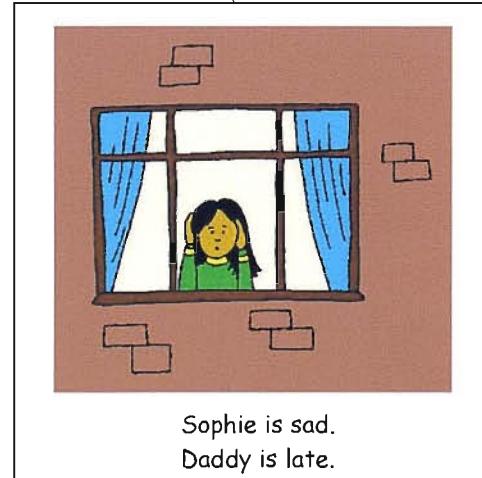
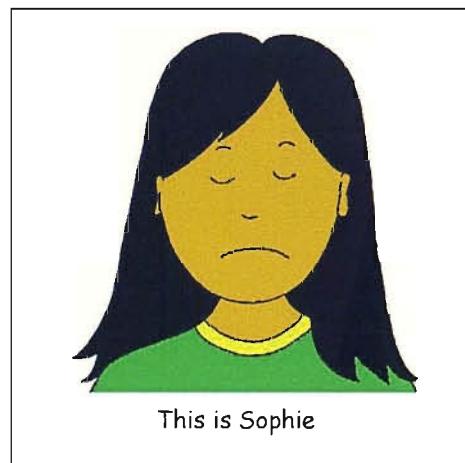
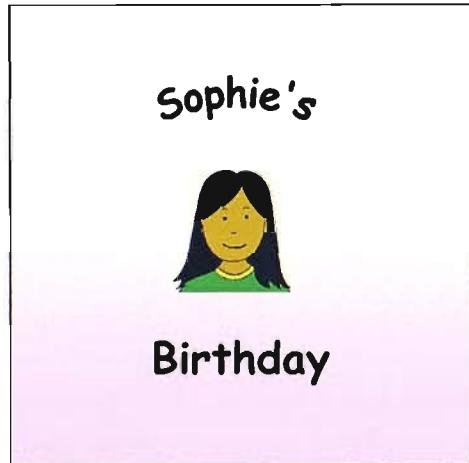


The spider has run away.

BLOCK C; STORY 2



BLOCK C; STORY 3

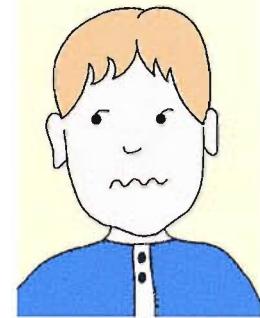


BLOCK C; STORY 4

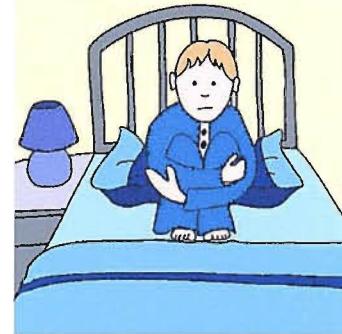
Harry



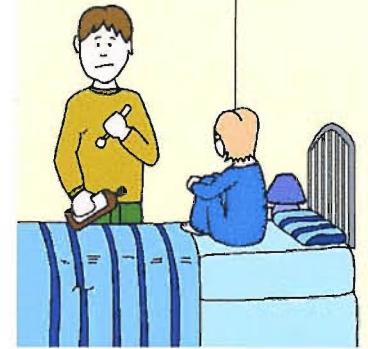
is Sick



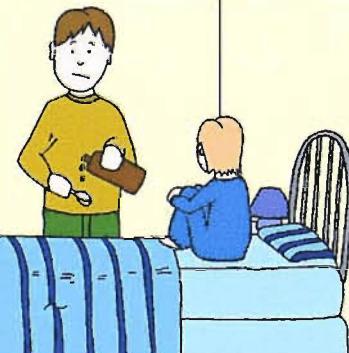
This is Harry



Harry was scared when  
he went to the doctor.



Harry is sick.



Daddy gives Harry some medicine.  
Harry calls out "Mmm, yummy medicine!"



Harry is tired.  
He wants to sleep.



Daddy wakes Harry up to  
give him a drink.

## Appendix I

## INSTRUCTIONS

Hello <child's name>, my name is Alex. We're going to read some stories together. But first I want you to help me.

(*Spread out emotion faces*). Look at all these faces.

Show me the happy face.

Show me the sad face.

*Randomise order of emotions*

Show me the angry face.

Show me the frightened face.

Show me the OK face.

Good job! Now I'm going to read you some stories about children who are your age. Each time we finish a story, you'll get a sticker. (*Show stickers*).

I want you to listen very carefully to each story. When I'm finished, I'm going to ask you how the child feels: -

If you think the child is X, which face would you show me? Great!

And if you think the child is X, which face would you show me? Well done!

What if you think the child is X, which face would you show me? Good job!

And if the story makes you feel X, which face would you show me? Great!

If you think the child is X, which face would you show me? Well done!

I'm also going to ask you how you feel when you hear the story: -

If the story makes you feel X, which face would you show me? Good job!

And if the story makes you feel X, which face would you show me? Well done!

What if the story makes you feel X, which face would you show me? Great!

And if the story makes you feel X, which face would you show me? Good job!

If the story makes you X, which face would you show me? Well done!

Now we're ready for a story.

Which story would you like me to read first?

This story is about <character's name>. Listen carefully...

## Appendix J

# EMPATHY MEASURE CARTOON PILOT: SCORING SHEET

Participant Number:		
DoB:		
Age:	years	months
Sex:	M	F

Receptive Identification	Happy	
	Sad	
	Angry	
	Frightened	
	OK	

Character	Cue	Character feels	Reason	Participant feels	Reason
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	

Character	Cue	Character feels	Reason	Participant feels	Reason
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	
	Face	H S A F N		H S A F N	
	Situation	H S A F N		H S A F N	
	Verbal	H S A F N		H S A F N	
	Desire	H S A F N		H S A F N	

## Appendix K

Well Done!

---



## About the project

Thank you for all your help. You have been pretending to be <character's name>. You have acted out lots of different situations where <character's name> feels happy, sad, angry or frightened.

I will now select the best clips from your film and show them to young children (aged 3-4). These children will be asked to guess how you were feeling in each situation. They will be given points for getting the right answer.

I will not tell anyone your real name or anything else about you. Instead I will call you by your character's name.

You will get a copy of your film in a few weeks time. Today, I would like to give you a gift token. This is to thank you for all your help.

Do you have any questions?

## Getting help

If you have feelings that worry you, there are lots of ways to get help:

- Lots of children find it helpful to talk to their parents about their feelings.
- You can also see your doctor who can give you advice. Your doctor may also suggest that you see someone who understands your problems and can help you.
- You can also call ChildLine 0800 1111 whenever you want to talk to someone in private.

Thank you for helping me.



## Appendix L

Appendix L: Facility Index and Discrimination Index for Each Story Item Organised by Block

	Facility Index												Discrimination Index											
	Block A				Block B				Block C				Block A				Block B				Block C			
	F	S	V	D	F	S	V	D	F	S	V	D	F	S	V	D	F	S	V	D	F	S	V	D
Protagonist																								
Happy	.94	.93	.88	.31	.94	.73	.82	.82	1.00	1.00	.87	.56	.12	.33	.54*	.16	.41	.52	.56*	.54*	Ø	Ø	.11	-.02
Sad	.87	.94	.88	.56	.88	.94	.94	.60	.94	.93	.88	.73	-.16	-.18	.14	.21	-.02	.60*	.26	-.37	-.17	.21	.14	-.34
Angry	.94	.06	.25	.13	1.00	.18	.35	.20	.81	.13	.00	.07	.20	.56*	.31	.17	Ø	.21	.04	.44	.31	-.09	Ø	.25
Frightened	.82	.44	.33	.12	.76	.25	.27	.12	.73	.31	.20	.19	.12	-.10	.03	.01	.27	.37	.11	-.36	-.30	.35	.36	-.14
Mean	.89	.59	.59	.28	.90	.52	.60	.44	.87	.60	.48	.39												
Observer																								
Happy	.93	.86	.75	.36	.93	.62	.93	.75	.86	1.00	.77	.50	.27	.35	.43	-.01	.47	.77**	.65**	.31	.36	Ø	.32	.09
Sad	.50	.53	.46	.21	.40	.50	.71	.31	.60	.57	.71	.46	.71*	.58*	.74**	.48	.68**	.58*	.76**	.36	.52*	.47	.40	.08
Angry	.38	.27	.29	.14	.43	.20	.20	.15	.31	.07	.07	.00	.65*	.62*	.60*	.62*	.85**	.63**	.55*	.16	.69**	.61**	.42	Ø
Frightened	.29	.43	.29	.00	.38	.36	.38	.00	.39	.07	.08	.00	.71**	.15	.12	Ø	.49	-.03	.06	Ø	.27	.58*	.58*	Ø
Mean	.52	.52	.45	.19	.54	.41	.56	.33	.54	.43	.41	.24												

\*  $p < 0.05$ . \*\*  $p < 0.01$

Ø this statistic cannot be computed because of low variability in the item score

## Appendix M

Appendix M: Distracter Analysis – Percentage of Agreement on Emotional Attributions for each Story Item Organised by Block

		PROTAGONIST															OBSERVER															
		Block A					Block B					Block C					Block A					Block B					Block C					
		H	N	S	A	F	H	N	S	A	F	H	N	S	A	F	H	N	S	A	F	H	N	S	A	F	H	N	S	A	F	
HAPPY	Facial	94	6	0	0	0	94	0	0	6	0	100	0	0	0	0	93	7	0	0	0	93	7	0	0	0	86	14	0	0	0	
	Situation	93	7	0	0	0	73	13	7	7	0	100	0	0	0	0	86	14	0	0	0	62	31	7	0	0	100	0	0	0	0	
	Verbal	88	0	6	0	6	82	6	12	0	0	87	6	7	0	0	75	25	0	0	0	93	7	0	0	0	77	8	15	0	0	
	Desire	31	6	57	6	0	82	6	12	0	0	56	0	38	6	0	36	36	21	7	0	75	19	6	0	0	50	14	29	0	7	
	<b>Average</b>	77	5	16	1	1	84	6	8	2	0	87	1	11	1	0	73	20	5	2	0	81	16	3	0	0	78	9	11	0	2	
SAD	Facial	0	6	87	7	0	0	6	88	6	0	0	0	94	6	0	21	29	50	0	0	33	20	40	7	0	13	20	60	0	7	
	Situation	6	0	94	0	0	0	0	94	6	0	0	0	93	0	7	13	20	53	7	7	25	19	50	6	0	14	21	57	7	0	
	Verbal	6	0	88	6	0	0	6	94	0	0	0	0	88	0	12	15	31	46	8	0	22	0	71	0	7	0	15	71	7	7	
	Desire	25	6	56	13	0	20	13	60	7	0	13	0	73	14	0	57	14	21	7	0	23	39	31	8	0	23	15	46	16	0	
	<b>Average</b>	9	3	81	7	0	5	6	84	5	0	3	0	87	5	5	27	23	43	5	2	26	19	48	5	2	13	17	59	7	4	
ANGRY	Facial	0	0	6	94	0	0	0	0	100	0	0	0	0	13	81	6	25	12	13	38	13	14	7	7	43	29	23	15	23	31	8
	Situation	0	0	94	6	0	0	0	82	18	0	0	0	87	13	0	7	13	53	27	0	20	13	40	20	7	22	14	50	7	7	
	Verbal	0	6	69	25	0	0	0	59	35	6	6	0	94	0	0	29	6	29	29	7	27	26	27	20	0	14	14	65	7	0	
	Desire	7	13	60	13	7	47	6	27	20	0	20	6	67	7	0	21	7	57	14	0	39	7	39	15	0	50	14	36	0	0	
	<b>Average</b>	2	5	57	34	2	12	1	42	44	1	7	1	66	25	1	21	10	38	26	5	25	13	28	25	9	27	14	44	11	4	
FRIGHTENED	Facial	0	0	18	0	82	0	0	24	0	76	0	0	13	13	73	21	36	0	14	29	24	19	19	0	38	15	15	8	23	39	
	Situation	0	0	56	0	44	6	6	63	0	25	6	6	57	0	31	29	7	21	0	43	14	0	50	0	36	43	13	36	0	7	
	Verbal	0	7	60	0	33	0	6	67	0	27	13	0	67	0	20	14	7	50	0	29	15	15	32	0	38	31	15	38	8	8	
	Desire	29	0	59	0	12	29	6	53	0	12	44	0	37	0	19	60	13	27	0	0	65	21	14	0	0	79	14	7	0	0	
	<b>Average</b>	7	2	48	0	43	9	3	52	0	36	16	1	44	3	36	31	16	25	3	25	30	14	28	0	28	42	14	22	8	14	